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FUEGIAN SONGS

By ERICH M. VON HORNBOSTEL*

OF Fuegian native music scarcely anything was known until recently, except a few poor notes scattered in ethnological literature,[1] and half a dozen musical examples recorded by ear and hence of doubtful reliability.[2] Colonel C. Wellington Furlong, on his visit to Tierra del Fuego in 1907–1908, was the first to take phonographic records of Ona and Yahgan songs,[3] copies of which were sent to the Berlin Archives and studied by the present writer.[4] The publication of this study, however, has been delayed first from outward reasons, then deliberately, the material available having been increased by a great number of records taken among Ona, Yahgan, and Alakaluf[5] by Professors M. Gusinde and W. Koppers in 1922–1923. Thus the conclusions already arrived at could be founded on a much broader basis. Considering the special interest of the Fuegians as preserving one of the most primitive culture types and, moreover, the frightful speed of their disappearance, the value of the phonographic documents collected in the eleventh hour cannot easily be overrated. In what follows I must content myself with outlining the main facts and conclusions concerning anthropology, and for a fuller discussion may refer to my contribution to Gus-

* We regret to announce the death of Dr von Hornbostel in England, November 28, 1935. Dr George Herzog has been kind enough to read proof of this article.—Editor.

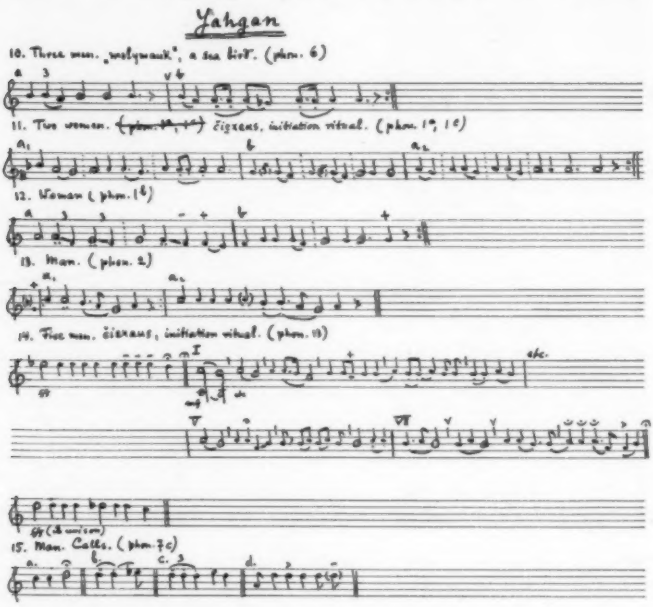
[1] Cf. J. M. Cooper, Analytical and Critical Bibliography of the Tribes of Tierra del Fuego and Adjacent Territory (Bulletin, Bureau of American Ethnology, 63, 1917), p. 180.

[2] The two songs in Charles Wilkes, Narrative of the United States Exploring Expedition During the Years 1838, 1839, 1840, 1841, 1842 (Philadelphia, 1845, 5 Vols.), Vol. 1, p. 129, at least approach the genuine character of Yahgan melody, whereas R. de Carfort's four examples (L. F. Martial, Mission scientifique du cap Horn, 1882–83, Vol. 1, p. 209 ff.) cannot even be taken as "free translations," but merely as parodies.

[3] Some Yahgan songs, recorded in Punta Arenas as sung by an Englishman who had lived there for forty years, clearly show that this length of time is insufficient to extirpate a European's inveterate musical habits.

[4] I wish to express my sincere gratitude to Colonel Furlong for his unfailing interest and valuable help throughout my work on Fuegian music.

[5] The usual tribal names are retained here instead of the more correct ones used by Professor Gusinde (Selk'nam, Yamana, Halakwalup).

inde's comprehensive work on the Fuegians.[6] Colonel Furlong's singers were: among the Ona, two women, Ichjh (Phonograph Record 12) and the "doctor" Yoyo (5), both in Rio Fuego, and two men, Ishtone in Najmish (Via Monte) (3) and Tininisk, a medicine man in Haberton (9, 11); among the Yahgan, in Lauwi (Punta Remolino) the women Simoorwhilliss (Alice) and Weemanahakeepca (Gertie) (1), and the men Danushtana (Alfredo),

Yahgan
10. Three men. „wolqwank", a sea bird. (phon. 6)
11. Two women. čizxens, initiation ritual. (phon. 1ª, 1c)
12. Woman (phon. 1b)
13. Man. (phon. 2)
14. Five men. čizxens, initiation ritual. (phon. 1b)
15. Man. Calls. (phon. 7c)

Nyempenan (David) (13, 6), with Aselensinjiz (Charley), Wuroyinjez (William), and Calderon (13), or Chris (6) joining in; and, in Rio Douglas, Navarin Island, Edward (? 2, 7).[7]

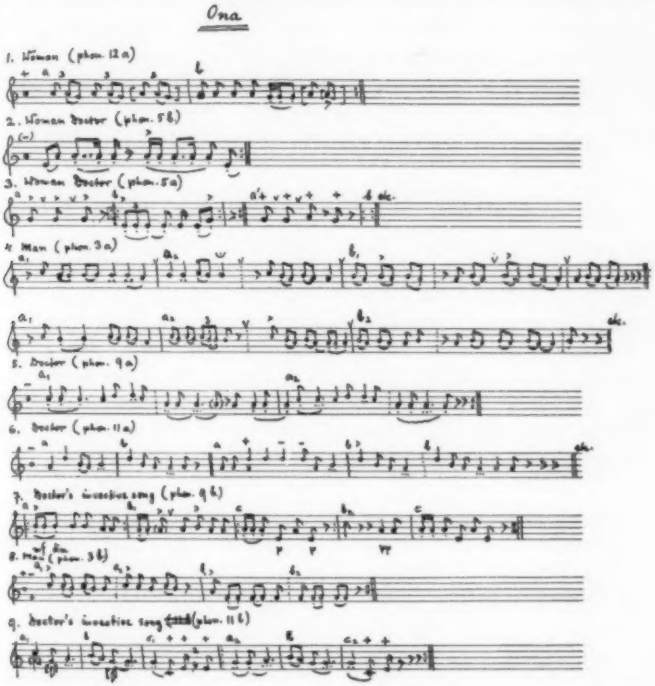
In the music printed here a few additional signs have been used: + sharpens, − flattens the note up to a quartertone, constant deviations throughout a song being indicated in the beginning.[8] A heavy line between

[6] M. Gusinde, Die Feuerland-Indianer (Mödling bei Wien, in press), Vol. 2.

[7] Gertie, Calderon, and Chris (Crees) were also among Professor Gusinde's singers.

[8] Whenever possible the actual intervals have been ascertained tonometrically. There is, however, no need to give the results here as they are of no consequence to anthropology.

two noteheads indicates *glissando*. Headless notes and notes in parentheses are indistinct, parts in square brackets are variants, ⌣ shortens the note; bar-lines divide into groups, not into bars;[9] ∨ marks a breathing space.

The women's songs were apparently distinguished neither as a particular category, nor musically, from the men's songs. Duties and rights, with

Ona
1. Woman (phon. 12 a)
2. Woman Doctor (phon. 5 b)
3. Woman Doctor (phon. 5 a)
4. Man (phon. 3 a)
5. Doctor (phon. 9 a)
6. Doctor (phon. 11 a)
7. Doctor's evocative song (phon. 9 b)
8. (phon. 3 b)
9. Doctor's evocative song (phon. 11 b)

the Fuegians, are almost equally distributed between the sexes. Thus, female shamans, as with some Siberian peoples, are not uncommon, and of course they will use the same kind of chants, and for the same magic purposes, as the medicine men (P. R. 5, 9ᵃ, 11ᵃ).[10] The Yahgan initiation cer-

[9] The time as measured with the metronome on Professor Gusinde's records averaged 98 for the Selk'nam, 90 for the Yamana.

[10] Particularly those for healing the sick (Musical Examples 39–41, Selk'nam, in Gusinde *op. cit.*, Vol. 2); increasing fish (Yamana, M. E. 38); other categories are probably reserved

emony is gone through by both boys and girls; consequently both know all the songs sung at this occasion mostly to accompany pantomimic (animal) dances (P. R. 1, 13, 6).[11] Like the Eskimo, the Ona medicine men sing invective songs in order to deride each other (P. R. 9[b], 11[b]). Calls and answers voiced with a musical tone, i.e., rather sung than spoken, are used as signals by the Yahgan (P. R. 7[c]). The same custom has been reported from the primitive Kubu in the forests of Sumatra.[12] Somewhat similar in character to a call is the ff-phrase preceding and following the song proper in Musical Example 14. Again, such a framing, which very probably has (or originally had) a magical meaning, frequently occurs in native songs: cf., e.g., the stereotyped formulæ of the Kubu (beginning and end), Uitoto Indians in Colombia (end flourish),[13] and Pangwe in the Cameroons (introduction).[14] Realistic imitations of birds' cries—uttered by the bystanders, not the singers, during Yahgan pantomimic dance songs—bear no relation whatever, not even rhythmically, to the music, but testify to the mimic talent of these people.[15] (Cf. the coyote bark frequently added to the end of a song by North American Indians, e. g., the Pawnee.)

All Fuegian songs—as has likewise been ascertained for the Tehuelche[16] —lack (meaningful) words. The meaningless syllables, however, being unchangeably associated and handed down with the tunes, must be considered as survivals of original words which for one reason or another ceased to be understood, and then were liable to distortion. Such a process is evidenced by many examples from primitive as well as from civilized peoples.[17]

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for men, e.g., war songs (Selk'nam, M. E. 38), weather charms (?). Certain magic songs are the personal property of an individual doctor (Yamana, M. E. 19, 20), as is frequently the case among North American Indians.

[11] Cf. Gusinde, *op. cit.*, Vol. 2, M. E. 1–10 (Yamana), 28–31, 33–37 (Halakwalup). Other songs sung during the initiation ceremony: M. E. 12–16 (Yamana), 43–44 (Selk'nam). In the Ona Kloleten it is the women's duty to sing certain songs (Gusinde, *op. cit.*, Vol. 1, p. 1038 and M. E. 43–44). The Yamana women also take an active part in the death chants (Gusinde, *op. cit.*, Vol. 2, M. E. 21, 22), and, of course, in the singing of pasanna, secular songs for "entertainment" (M. E. 23–26). Possibly the songs the Halakwalup women sing when going for water (M. E. 32) are specific to that occasion.

[12] In B. Hagen, Die Orang-Kubu auf Sumatra (Frankfurt am Main, 1908), p. 265. Cf. C. Stumpf, Die Anfänge der Musik (Leipzig, 1911), p. 121.

[13] F. Bose, Zeitschrift für Musikwissenschaft, Vol. 2, pp. 1, 25, 1934.

[14] In G. Tessmann, Die Pangwe (Berlin, 1914), Vol. 2, p. 320.

[15] W. Koppers, Unter Feuerland-Indianern (Stuttgart, 1924), p. 66, and phonographic records.

[16] R. Lehmann-Nitsche, Patagonische Gesänge und Musikbogen (Anthropos, Vol. 3, 1908), p. 928.

[17] It generally happens when magic chants or spells or ceremonial texts are introduced

The songs—as in fact, the whole culture—of the Fuegians can be said to be characteristically American Indian and at the same time extremely primitive; the first statement applying more particularly to the Ona, the second to the Yahgan and Alakaluf.

The most conspicuous factor contributing to the character of Indian music is the *manner of singing*. It will be readily apprehended when hearing Indian singers (or records); but it is almost impossible to analyze the immediate impression and to convey to someone else a clear notion by enumerating its "elements." Bearing this in mind, we may describe Indian singing by such epithets as emphatic, pathetic, impressive, grave, solemn, dignified, weighty, stern, etc., (which would also apply equally to the Indian's dancing, general motor behavior, and temper). Among the features responsible for this impression will be found strong accents, often further increased by audible expiration, on almost every crochet; a tendency to connect the notes by a *portato* and to subdivide lengthened notes by pulsations; the time being moderate or rather slow and remaining constant throughout the song. Thus, the characteristic Indian movement is never sprawling or jumping (as with African Negroes), nor gliding or softly waving to and fro (as frequently in Oceania), but rather striding in a heavy regular pace. Perhaps the most important knowledge to be derived from Fuegian songs is the fact that the "emphatic" singing manner, though as strongly conspicuous among the Ona as among any other Indians, is entirely absent among the canoe-faring tribes, the Yahgan and Alakaluf.

Another basic feature hardly to be separated from the one already mentioned, is the Indian's *rhythmic feeling*, which is strongly contrasting with our own. Our normal rhythmic groups are iambics, rising from a light (unaccented, short) beat to the heaviest accent of the group (which may be lengthened). In our usual notation the two beats are separated by the bar-line and the notes preceding the bar-lines are called "upbeat" (*arsis*). Indian rhythm, on the contrary, may be described as *lacking an upbeat*. The typical group is a "*dynamic trochee*." It begins with the strongest beat—which is generally shortened and followed by a breathing space, its strength thus being further increased—and then drops off through a

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from a foreign people whose language is not understood. Cf., e.g., for Australia, A. W. Howitt, The Native Tribes of South-East Australia (London, 1904), p. 414 (songs); for Torres Straits, Report of the Cambridge Anthropological Expedition to Torres Straits (Cambridge, 1901–1935), Vol. 4, Chapter 12 (ceremonial songs); on Shivaitic ritual texts in Bali, Dr Poerbadjaraka in T. de Kleen and P. de Kat Angelino, Mudras auf Bali (Hagen in Westphalen, 1923); magic chants in Hellenistic papyri, e.g., A. Dieterich, Abraxas (Leipzig, 1891); and the old formulæ surviving in our children's game songs and counting rhymes.

series of, as it were, rebounding accents. Though the length of this series is variable, even in one and the same song (cf., e.g., M. E. 6, 13), the second pair of a group is, as a rule, longer than the first: triplets are commonly of the 1+2 type (M. E. 1, 8, 10), and analogously four beats are grouped into 1+3 (M. E. 6), five into 1+4 (M. E. 11, beginning), etc. The same principle governs the subdivisions and, naturally, the structure of the whole song. In M. E. 9 the Western hearer will feel the phrases as consisting of three $\frac{6}{8}$ bars, i. e., groups of 3+3; whereas they are almost certainly meant as 1+2 groups of 2+(1+3) quavers each, the three pulsations on the long note again being a 1+2 grouplet.

The characteristic type of rhythm here described prevails in Yahgan and Alakaluf as well as in Ona music and, in fact, in any Indian music from North or South America. Deep rooted in general motor behavior as it is, it reappears in the most common Indian dance movement: one foot, after a wide step aside, is stamped on the ground; then the other foot is drawn after and stamped down, though less heavily, near the first one; a short rest may be filled with treading on the spot, then the movement is repeated.

A characteristic of Fuegian music is its *narrowness;* this appears both in tonal range and length of melodic units. The backbone of the melodic structure is a pair of notes, limiting a distance which rarely exceeds a whole tone (M. E. 1, 3b) and in many cases is confined to a semitone or less (M. E. 8, 4, 14), or is merely the result of fluctuations of a single tone, following the fluctuations in dynamic stress.[18]

Sometimes the whole song is limited to the principal "second" (M. E. 1). A third tone, however, is frequently added when the higher principal tone is sharpened by an accent (M. E. 3a′; 4, 8, 11, 12 in the beginning), or when the lower principal tone is further dropped on a weak beat (M. E. 10b, 12, 7c). Moreover, a two-tone motive may be shifted downwards, its lower note becoming the higher one in the repetition (M. E. 4, 11, 14). The range thus being enlarged, consonant intervals are aimed at as a frame to the melody, viz., a fourth (M. E. 10, 11, 12, 13; 3, 5, 6, 2), or, with the Ona, a fifth (M. E. 7, 8) or even an octave (M. E. 9). In Ona songs the fourth and fifth also occur as melodic progressions (M. E. 2, 6, 7, 9), and in one instance (M. E. 8) the motive is transposed downward by a fifth.[19]

By such means Ona melody escapes the primitive narrowness and

[18] Cf. M. E. 22 in Gusinde, *op. cit.*, Vol. 2.

[19] In chorus singing, octaves (M. E. 14) or fifths (Gusinde, *op. cit.*, Vol. 2, M. E. 13, 14) are used unconsciously instead of unison. This fact proves that consonance also acts, if physiologically, on the Fuegians.

approaches the Indian type. Usually an Indian melody starts on the highest note with utmost strength, descends by shifting the motive from step to step—hence this type has been styled "stair-pattern melody"—at the same time decreasing in loudness, and finally dies away on the lowest note, which in some cases is more than two octaves below the initial pitch; the second verse repeats the first one, starting from the next to the highest level, and so forth, the last verse being confined to pulsations on the lowest note. Approximations to this form may be found in the Ona songs (M. E. 7, 8, 9).

There are several features in Fuegian songs, on the other hand, which offer exceptions to the exclusively downward trend of Indian melody. Frequently, and with the Yahgan almost as a rule, motives or whole melodies end with a *rise* to the next to the lowest note (M. E. 11; 12; 13; 14, v, vii; 15a, b; 1b; $4b_2$; 9a, c). A similar rise sometimes occurs in the beginning (M. E. 2; 6; 15d). Even the level, in strict opposition to Indian style, may be gradually shifted *upwards* from verse to verse.[20]

To summarize: Indian musical style is easily to be recognized by (1) its "dynamic trochee" rhythm which, contrary to our Western tendencies, avoids the upbeat; (2) a peculiar "emphatic" manner of singing which results from such factors as a certain voice-quality, strong accents on every time-unit, pulsation, slow and constant time; (3) a downward step-by-step shift of the main theme (stair-pattern) and a collapsing tendency of the melody, which from start to end continually decreases in pitch, intensity, and tonal range. This style prevails among the Indians of both Americas, including the Eskimo (also in Greenland), and among Siberian tribes who are related to the Indians, both somatically and culturally, as, e.g., the "Palaeo-asiatic" Chukchee and the Keto (Ostyak) on the Jenissei River, and among the semi-Tungus Orotchee on the lower Amur River, and in Korean folk-songs.

On the other hand, there are exceptions to the Indian style even in America. The Yahgan and Alakaluf, though conforming to the Indians in their rhythmic and general motor behavior, differ from them in their manner of singing which entirely lacks the Indian characteristics, and further in their melodies by several "primitive" features, viz., extreme narrowness, simplicity, and shortness of themes, a tendency to rise (or return) to an upper level contrary to the general downward trend. The same archaic traits, including non-emphatic singing manner, have been found in some other places in America, though they are buried under more recent layers

[20] Yahgan songs: Gusinde, *op. cit.*, Vol. 2, M. E. 15.

of Indian culture and hence less frequent and less clearly pronounced. As the Ona in some of their songs approach the style of the canoe-faring tribes in narrowness and melodic rise—but not in singing manner—so do, if to a still lesser degree, their continental relatives, the Tehuelche.[21] As with the Fuegians, so equally with the Tehuelche the words sung have lost their meaning.[22] Again, songs of the primitive "Fuegian" type have been reported from the Uitoto in the virgin forest on the Colombian-Peruvian frontier.[23] (The old stratum to which this musical style belongs may be detected beneath still other South American cultures, e.g., that of the Botocudo and other tribes of the Geez stock, from whom unfortunately phonographic records are not yet available.)

In North America the primitive musical style survives in songs from Southern California Indians and tribes of the Yuma group closely related to them.[24] Their voices and singing manner lack the characteristic "Indian" quality; the "rise" in melody is even more apparent than with the Fuegians and has developed into various forms; though the tonal range is usually not very small, traces of original narrowness may be found in the fact that the two prominent notes are only a second apart from each other, and of about equal importance but for the higher note being occasionally stressed as a final goal. In many of the songs the meaning of the words is obsolete. The relation between Californian and Fuegian cultures is further confirmed by parallels in the realm of religious, social, and economic life.[25]

Considering, on the other hand, the uniformity of the Indian musical style extending over the whole area from Magellan Straits to the Arctic sea and from the east shore of Greenland to the Jenissei; and on the other hand, the strong contrast to this style shown by songs of the Yahgan and Alakaluf, we may feel inclined to distinguish the latter tribes culturally, if not somatically, as belonging to a separate pre-Indian group.[26] These

[21] E. Fischer, Patagonische Musik (Anthropos, Vol. 3, 1908, pp. 941–51).

[22] R. Lehmann-Nitsche, Patagonische Gesänge und Musikbogen, pp. 916–40.

[23] F. Bose, *loc. cit.* One Uitoto song (No. 36) is almost identical with the "personal" song of a Yahgan medicine man (Gusinde, *op. cit.*, Vol. 2, M. E. 19).

[24] Helen H. Roberts, Form in Primitive Music (New York, 1933); George Herzog, The Yuman Musical Style (Journal of American Folk-Lore, Vol. 41, 1928, pp. 183–231); Musical Styles in North America (Proceedings, 23rd International Congress of Americanists, New York, 1928 [1930], pp. 455–58); Review of Frances Densmore's "Yuman and Yaqui Music" (Zeitschrift für vergleichende Musikwissenschaft, Vol. 1, 1933, pp. 91–93); Frances Densmore, Yuman and Yaqui Music (Bulletin, Bureau of American Ethnology, 110, 1932); E. von Hornbostel (Zeitschrift für vergleichende Musikwissenschaft, Vol. 2, 1934, p. 60).

[25] W. Schmidt, Der Ursprung der Gottesidee (Münster, 1928), Vol. 2, p. 1021 ff.; R. H. Lowie, Selk'nam Kinship Terms (American Anthropologist, Vol. 35, 1933, pp. 546–48), p. 548.

[26] Physically the Yahgan are clearly different from the Ona. There is no space here to

people then would have been literally the forerunners of the real Indians' immigration into the American continent. Here they were not only driven to the remotest borders, or places difficult of access, but in the course of time naturally have been subject to influence from their less primitive neighbors. Thus the Yahgan very probably have borrowed the mask plays, that are kept secret from women, and the medicine men's organization and ceremonial meetings from the Ona, who in turn apparently are not the originators but merely mediators of these customs, at least of the first.

Outside America, the primitive pre-Indian musical style is closely paralleled by that of the Vedda[27] and the Andaman Islanders.[28] Their melodies are extremely narrow, frequently rising at the end of the lines; the number of time-units varies arbitrarily (or according to the number of syllables) in almost every repetition of one single phrase, though the time remains constant. (The Andaman Islanders also sing in octaves and fifths instead of in unison, as sometimes do the Yahgan.)

The well-known fact that in really primitive cultures sound instruments are almost completely absent, though being of no great importance in itself, enhances the purport of those rare parallels which may be found in this realm. In their death dance, as witnessed by Colonel Furlong,[29] the Yamana women were tamping the ground with pairs of long thick posts (which may have been substituted for oars). Sachs,[30] quoting Playfair, has drawn attention to the similar custom of the Garo in Assam, where the women, when watching the dead, accompany their songs by beating or tamping on the floor with a piece of wood. Likewise among the Kurnai, one of the most primitive southeastern Australian tribes, in a ceremony preliminary to the initiation, the mothers of the novices keep time by tamping their yam-sticks on the ground.[31] (Note that in every instance it is the

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discuss the problem whether the manner of singing is a hereditary physical character, as the voice quality and the general motor behavior undoubtedly are, or a mere traditional custom. It has been suggested that the "Indian emphasis" was a device of the shamans to render their incantations more impressive; but then it would be difficult to account for the fact that the Yahgan should have borrowed the medicine men's practice from the Ona with the exception of the emphatic singing manner.

[27] C. S. Myers, Chapter 13 in C. G. and B. Z. Seligman, The Veddas (Cambridge, 1911); M. Wertheimer (Sammelbände der Internationalen Musik-Gesellschaft, Vol. 11, 1909, p. 300).

[28] M. V. Portman (Journal, Royal Asiatic Society, Vol. 20, Part 2, p. 181).

[29] C. W. Furlong, The Southernmost Peoples of the World (Harper's Monthly Magazine, New York, June, 1909), p. 136.

[30] C. Sachs, Geist und Werden der Musikinstrumente (Berlin, 1929), p. 73; A. Playfair, The Garos (London, 1909).

[31] A. W. Howitt, The Native Tribes of South-East Australia, p. 620.

women who use the tamping sticks.) In their mask plays the Ona and (hence) the Yahgan make frightful noises by beating the ground with rolled-up hides in order to stage the raging of a wrathful spirit of the earth.[32] Again the same instrument is used by southeast Australian women, though not as a beater, but rather as a drum.[33] The Ona custom is further paralleled by southeast Australian men, when (in certain dances) they beat small mounds of earth or simply the ground with strips of bark.[34] Still more striking a coincidence is the belief, common to both southeast Australians and Fuegians, that the medicine men learn songs and spells in dreams from one of their defunct relatives or from other spirits.[35] (With both peoples in olden times the medicine men, or rather the spirits "talking in very curious voices" through the mouth of the shaman, used to inform their tribesmen of distant events, e.g., of a whale stranded on the shore.[36]) As with the Yahgan, so likewise with the southeast Australians, the initiation ceremonies include pantomimes and dances in which the behavior and cries of (totem) birds and animals are realistically imitated.[37] Unfortunately no phonographic records were made of southeast Australian (and Tasmanian) songs before the curtain dropped forever on the history of these natives. Yet, from the competent remarks and notations of Wurunjerri songs contributed to A. W. Howitt's work by Dr Torrance,[38] we may at least feel sure that southeast Australian melody was of a primitive narrow type. Every verse begins with a downward glide through a whole tone (or less) and continues, with strong accents on every beat, throughout on the lower note thus reached, until, at the beginning of the second verse, the level is shifted one step downward. Usually the song being then repeated, its entire compass does not exceed a (minor) third. In other songs there occur one or more downward shifts with every repetition, yet this variant of the "stair-pattern"—which is used incidentally by the Papuans of Torres Straits in their ancient ceremonial songs[39]—may be a more recent importation from the north. This seems the more probable as the songs of

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[32] M. Gusinde, Die Feuerland-Indianer. I, Die Selk'nam (Mödling bei Wien, 1931), pp. 922, 924; W. Koppers, Unter den Feuerland Indianern (Stuttgart, 1924), p. 189.

[33] Howitt, *op. cit.*, pp. 389, 392, 528, 536, 579, 618, 620.

[34] Howitt, *op. cit.*, pp. 539, 585, 604, 620.

[35] Howitt, *op. cit.*, pp. 388, 390, 397, 416, 435; Gusinde, *op. cit.*, Vol. 1, p. 781.

[36] Howitt, *op. cit.*, p. 391; Gusinde, *op. cit.*, Vol. 1.

[37] Howitt, *op. cit.*, pp. 547, 568, 582.

[38] Howitt, *op. cit.*, pp. 418–21.

[39] C. S. Myers, Music (Report of the Cambridge Anthropological Expedition to Torres Straits, Vol. 4), pp. 238–69.

the central and west Australians[40] (whose culture is not primitive) actually belong to the "stair-pattern" type, and—but for the singing manner—so closely resemble American Indian songs, that, e.g., an Arunta song may easily be mistaken for, say, a Pawnee song, even by an expert. Thus the situation in Australia and South America as regards musical culture appears to be exactly homologous, and this fits well in the cluster of remarkable correspondences in cultural details, on which Professor Koppers[41] has based his hypothesis of a common origin of the southeast Australian and Andamanese cultures on the one hand, and Fuegian and Californian cultures on the other. According to such an hypothesis, the forefathers of the primitive tribes (Fuegians, Californians, southeast Australians and Tasmanians, Andamanese, Vedda) would have lived as neighbors somewhere in Asia in very remote times, and from there would have migrated under pressure of more advanced tribes (American Indians, Australians, Papuans, etc.) on divergent lines, until they reached their present habitats.

CAMBRIDGE, ENGLAND

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[40] E. Harold Davies, Aboriginal Songs of Central and South Australia (Oceania, Vol. 2, 1932, pp. 454–67); C. Stumpf, Die Anfänge der Musik, p. 122; E. M. von Hornbostel (Jahrbuch der Musikbibliotek Peters, Leipzig, Vol. 19, 1913), p. 21.

[41] W. Koppers, Die Frage eventueller alter Kulturbeziehungen zwischen dem südlichsten Südamerika und Südostaustralien (Proceedings, 23rd International Congress of Americanists, New York, 1928 [1930], pp. 678–86).

MARITAL PROPERTY RIGHTS IN BILATERAL SOCIETY

By RUTH BENEDICT

EARLY anthropological students of social organization took account only of clan societies. The curiosities of the unilateral social forms caught and held the attention of an entire generation, and led to far-reaching theories of the evolution of man. With the gradual accumulation of anthropological information it became obvious that many primitive people were bilateral, and in 1905 Dr Swanton[1] pointed out that in North America bilateral forms existed precisely in those tribes in which material culture and social institutions were the most primitive or uncomplex. In other parts of the world, also, bilateral forms were found in simple cultures, like those of the Andamanese, the Fuegians, the Bushman and the Semang, and Professor Lowie[2] pointed out in 1920 that these findings involve a complete reconsideration of the theory of the priority of unilateral social organization.

It has become a commonplace of anthropology to point out this bilaterality of the most primitive known tribes, and perhaps it was inevitable that this bilaterality should be confused, in subsequent anthropological theory, with the bilateral family under our own social forms. In these primitive societies, as in our own, kinship is reckoned equally through the father and the mother, and upon marriage the newly formed social unit of man and wife tends to have somewhat greater autonomy than is usual among societies where the clan is the important social unit. It was natural for students to assume, therefore, that this bilaterality in primitive societies as in our own was a recognition of "the duality of parenthood,"[3] and the family, i.e. the spouses and their children, represented a focal point upon which converged property and status prerogatives drawn equally from the consanguineal lines of the father and the mother. Primitive bilaterality, according to this view, is a form of society which, in contradistinction to clan forms, does not "disrupt the houshold,"[4] i.e. the common interests of man and wife, which in exogamous clan organizations are primarily directed toward opposing groups. In the present paper I propose to examine this

[1] J. R. Swanton, The Social Organization of American Tribes (American Anthropologist, Vol. 7, pp. 663–73, 1905); A Reconstruction of the Theory of Social Organization (Boas Anniversary Volume, New York, 1906, pp. 166–78).

[2] R. H. Lowie, Primitive Society (New York, 1920), p. 150.

[3] R. L. Olson, Clan and Moiety in Native America (University of California Publications in American Archaeology and Ethnology, Vol. 33, No. 4, 1933), p. 411.

[4] Olson, *loc. cit.*

characterization of primitive bilateral societies especially with regard to property rights.

It is necessary to distinguish sharply between that right to the *use* of property which falls to the small family as a function of its common domicile, and the right to control of property over time, that is, inheritance. In all societies, except in the regions of the so-called visiting husbands, spouses have a common domicile, and their children remain with them for a time at least. Food, shelter, and household paraphernalia are therefore shared. In our own society this right to shared property in the family extends also to inheritance. Both spouses may legally inherit from their separate family estates, and the property of both spouses legally descends to their children or the living spouse, though each has the right of testamentary disposition. In other words the small family has prior claims to property which any member holds individually during his lifetime, and this priority overrides any right of the dead spouse's consanguineal kin to claim this property. The marital group is entrenched therefore in a joint right to economic goods which is by definition bilateral, and the family derives property freely from the lines of both spouses.

Such a recognition of the duality of parenthood is as alien to primitive bilateral forms of society as it is to unilateral. The closest approach to such a condition occurs among such tribes as the Ojibwa[5] where the thoroughgoing recognition of individual autonomy in all aspects of life guarantees to each person complete liberty of testamentary disposition, and the hunting territories, medicine bundles, and personal effects may be left to anyone, even a white, without social interference. Property is, therefore, in certain instances left to the spouse, and even though the prevailing line of descent is patrilineal the mother may leave her property to her children. Except for such special cases, even in simple societies bilaterally organized the small family does not constitute a legal unit for the pooling of permanent rights over economic goods; the husband does not inherit from the wife nor the wife from the husband, nor do young children have prior rights to property drawn from both the father's and mother's line.

Professor Lowie[6] in discussing this fact gives in explanation two widespread principles: (1) the division of labor between the sexes; such articles as bows and pots are sex-linked and are therefore not regarded as property which can be pooled in an inheritance that involves the passage of property from one sex to the other as in the inheritance between husband and wife.

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[5] Ruth Landes, The Ojibwa Woman (in press).

[6] Primitive Society, p. 244.

(2) The second causal factor Professor Lowie calls the sib factor and recognizes that this exists in tribes which are not formally organized on a sib basis.

The first principle is certainly inadequate in this connection, for houses, currency, and gardens are regularly inherited by women in a very large number of bilateral as well as unilateral societies. Equally, the husband, who as a male does not labor under property disabilities, does not inherit from the wife's line, even from her father, which would involve a transfer of property only from male to male. It is the second principle which is determinative, and the point which it is important to recognize is that it is as clearly recognized in the bilateral primitive societies as in those which have a formal clan system either patrilineal or matrilineal. Property is entailed to the consanguineal relatives, excluding the spouse, and commonly not even their children, who stand within the consanguineal group in bilateral societies, are given priority, but the brothers of the deceased. Sometimes, however, if the children are grown they have priority over the deceased's brothers. Among the Arapaho the dead man's brothers claim his property and there is little generosity or charity towards the wife and children,[7] that is, they are left destitute as far as the economic goods of the husband and father are concerned. Among the Eskimo, wives and young children have no claims; the children become the proverbially pitiable "orphans," and the widows are taken by other men as wives. Among the Kai of New Guinea[8] upon the wife's death her brothers take all her property, as do the husband's brothers upon his death. No spouse inherits from a spouse. Among the Chukchee[9] if there are no children the widow or widower returns to his or her family and can take nothing at all. A widow with children may either marry the deceased's brother or may return to her kin; if the former, the brother (or cousin) will start the children in life in due time from the deceased's property which he takes over; if the latter, the children have no further claim, and, just as if the man had died childless, the herds will be taken by his brother and pass to the latter's children. It is not necessary to pile up examples. They recur all over the world. Against such a background the widespread institution of the levirate takes on its real significance in bilateral societies as well as in unilateral.

This channeling of property in the consanguineal group is just as striking if instead of considering fairly simple clanless societies we consider instead

[7] A. L. Kroeber, The Arapaho (Bulletin, American Museum of Natural History, Vol. 18, 1902), p. 13.

[8] Ch. Keysser, Aus dem Leben der Kaileute (in R. Neuhauss, Deutsch Neuguinea, Berlin, 1911), Vol. 2, p. 93.

[9] W. Bogoras, The Chukchee (Memoirs, American Museum of Natural History, Vol. 11, Leiden, 1909), pp. 607, 679.

those like the Samoans, the Kwakiutl, and the Ifugao whose bilaterality is of a different nature.[10] In these societies high rank is inherited in lineages which nevertheless draw bilaterally from both sides of the family. In the three examples just named, from which we have adequate information, the property disabilities of the woman as woman are much less than in the preceding group. Especially in the last two she may be rich in her own right, and she may manipulate property roughly on a par with a man. In addition, in all three, the wife shares on her own account in her husband's status activities. Both these facts make it the more striking that here again there exists the same legal claim of the consanguineal group to the property of either spouse. In Samoa[11] the fundamental consideration is that each individual, male or female, has throughout life claims upon the land possessed by his or her kin of both father's or mother's line—either of which claims he can exercise according to his choice, but not both at the same time—but not to that of the spouse. The widow or the divorced wife with her children returns to her relatives. She does not inherit from her husband. Nor is the affinal exchange, which is here of primary importance, used to finance the new bilateral family; certain goods are transferred from the kin of the husband to that of the wife and other goods are transferred from the kin of the wife to that of the husband, but this wealth is not in any sense the property of the marital group.

Among the Kwakiutl[12] a woman by a legal fiction may function as a man in any property or status activity, but she inherits from her own father's and mother's lines, not from her husband's. House privileges descend in strict patrilineal succession from father to son. Other and more important privileges descend in the matrilineal line, mother to daughter and daughter's daughter, but these privileges are regarded as held in trust for the offspring of these women by their husbands, so that the girl's dowry upon her marriage is phrased as passing from her father to his son-in-law. Here, as we have seen above among the Ojibwa, a great emphasis upon individual autonomy allows the individual the right to alienate this property upon occasion, and the chain may be broken. Even with this freedom, however, inheritance from husband to wife is extremely rare.

The Ifugao[13] have a meticulously codified law of inheritance. Barton

[10] Paul Kirchoff, The Principles of Clanship in Human Society (ms.).

[11] Margaret Mead, Social Organization of Manu'a (Bernice P. Bishop Museum, Bulletin 76, Honolulu, 1930), pp. 73, 97.

[12] F. Boas, Social Organization and Secret Societies of the Kwakiutl Indians (Report, U. S. National Museum for 1895, Washington, 1897), p. 359 *et seq.*

[13] R. F. Barton, Ifugao Law (University of California Publications in American Archaeology and Ethnology, Vol. 15, No. 1, 1919).

says: "It can never be too strongly emphasized that husband and wife never are united into one family." Their fundamental affiliations remain with their consanguineal kin, and if a conflict between these two lines becomes bitter each will adhere to his own family and the marriage will dissolve. Yet from this tribe come perhaps the strongest cases of joint marital enterprises. For as long as a marriage lasts, each spouse may act as a member of both families and participate in their economic activities. On account of the children a wife has a veto power over a sale made by her husband; the sale will be valid, but she may collect damages. This joint marital claim to property is most strikingly expressed in the very considerable funding of the new family at marriage. In Oceania it is usual for the affinal exchange to pass between the kin of the two spouses without becoming in any way the property of these spouses, but among the Ifugao both spouses receive allotments of land and property from their own kin and these have been the subject of much dickering if the families are wealthy. These goods conveyed to each spouse at marriage remain the individual property of each, and the other spouse acquires no interest in them during life. At death or divorce these goods return to the kin group to which they belong and the other spouse has no claim. The law is the same for men or women. Property acquired after marriage, if it is in no way the consequence of a family transaction of his line or hers, is pooled. At divorce this property, domestic animals, food stores, implements, and gold ornaments, is apportioned between them by umpires, along with possible liabilities. At the death of either husband or wife the living spouse inherits one half of this property acquired since marriage by the pair, and the other half goes to his or her brothers and sisters or other heirs in his or her father's line. The Ifugao have secured the husband and wife in their joint prosecution of economic enterprises, and that without blurring the universal primitive legal provision that entails property in the consanguineal line, although in this case another category of property is created—property acquired after marriage—upon part of which the spouse has claim.

This fact of the primary rights of the consanguineal kin to economic goods, to the exclusion of the spouse, makes clan institutions, either matrilineal or patrilineal, not a catastrophic change in social arrangements, but an ever-recurring possibility.[14] Clans represent a formal naming and classification of kin groups which were everywhere present in the economic sphere even though unformalized.

I have considered this solidarity of the consanguineal kin only in relation to property because the facts in regard to the transmission of status

[14] R. H. Lowie, Social Organization (Encyclopaedia of the Social Sciences, New York, 1934, Vol. 4, pp. 141–48).

have recently been admirably assembled by Professor Radcliffe-Brown[15] in a paper which deals with mechanisms of transmission in societies where unilateral forms obtain. His conclusion from this material is that the development of such unilateral forms is due to a sociological law according to which more and more precise definition of rights and obligations is socially achieved and continuity over generations more adequately secured. This is certainly true. It seems to me equally important to recognize that unilateral transmission of property and status patterns bilateral sibless societies no less than unilateral ones. A thoroughgoing recognition of this fact would make the development of unilateral institutions in tribes where conditions are more complex merely *post hoc* evidence of the fundamental importance of this mechanism in early simplest social organization. This mechanism, from this point of view, is one of the early and universal "inventions" of the human race, and wherever social environment becomes more elaborate, naturally becomes more explicitly and definitely formulated. Thereupon, such societies are classified as unilateral. If we understand the matter in this way, many current statements become impossible, such as "Unilateral societies, wherever found, represent deviations from the expectable, abnormalities in the special structure,"[16] and, "Unilateral institutions are in themselves anomalous and artificial. Matrilineal ones doubly so."[17] All such formulations rest upon a lack of analysis of the property and status mechanisms of bilateral primitive societies.

The facts just considered have bearing also on the old debate as to the relative importance of clan and family in primitive social organization. It is probable that the debate would never have been set up in these terms but for the classical anthropologists' priority in the field with their far-flung theories about social evolution suggested by their preoccupation with clan forms of organization. Clearly, the family as a group of spouses and their children who, whether they are by themselves or in some larger group, live and work together is fundamental in all human society except in the region of the visiting husbands. But just as clearly, the unilateral kin group has vested in it the status and property rights which gave an individual his place in the community, and this is as true of bilateral as of unilateral societies.

COLUMBIA UNIVERSITY
NEW YORK CITY

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[15] A. R. Radcliffe-Brown, Patrilineal and Matrilineal Succession (Iowa Law Review, Vol. 20, pp. 286–303, Iowa City, 1935).

[16] Olson, *op. cit.*, p. 411.

[17] Olson, *op. cit.*, p. 409.

FATHERHOOD IN THE WIK MONKAN TRIBE

By DONALD F. THOMSON

THE ignorance of the Australian aboriginal of the fact of physiological paternity has been affirmed so often that it is now generally accepted in anthropological theory as a fact. Any conception of the existence of a physiological, as distinct from a sociological, bond between father and child is said to be foreign to the aboriginal mind. Nevertheless, in a recent communication[1] I have shown that the natives of the Kǫkǫ Ya'o[2] and neighboring tribes of the east coast of Cape York Peninsula, North Queensland, are aware of the relation between sexual intercourse and pregnancy, and that they recognize a *physical*, as well as a *social*, bond between father and offspring. But in the same paper I showed that these tribes of the east coast of Cape York Peninsula had been influenced strongly by hero cults of Papuan origin that had modified considerably the indigenous culture.

The extension of field work on the Gulf of Carpentaria subsequently has shown that the knowledge of physiological paternity is widespread in this region. The natives of the Wịk Monkan tribe of Archer River, and also those of neighboring tribes, distinguish between physiological and sociological aspects of paternity by use of special terms, which are employed in conjunction with those of the kinship system. On account of the interest and importance of this subject, a study of the place of the father in the Wịk Monkan tribe is presented at some length in this paper.

The social organization of the Wịk Monkan tribe differs in several respects from that of the Kǫkǫ Ya'o and allied tribes of the east coast of Cape York Peninsula.[3] It is organized on a basis of localized totemic clans with patrilineal descent, and as in the tribes of the east coast, there is no class or "section" system for the regulation of marriage. The Wịk Monkan and allied tribes differ from those of the east coast, however, in the absence of personal totemism, which in those tribes is of an anomalous and specialized type, and in the absence of named moieties, which are present in the Kanju tribe to the east and in the Wịk-speaking tribes to the south. More-

[1] The Hero Cult, Initiation and Totemism on Cape York (Journal, Royal Anthropological Institute, Vol. 63, pp. 453–537, 1933).

[2] The phonetic system employed for vowel sounds is:

a as in father	o as in no in open	ǫ as in nor
ä as in come	syllables, and as	i as in feet
ą as in cat	not in closed syl-	ị as in fit
e as in fetch	lables, as in Eng-	u as in fool
é as in fate	lish	ụ as in full

[3] Cf. Thomson, The Hero Cult, Initiation and Totemism.

over, while the marriage system in all the tribes of the east coast is with the classificatory first cousin, in the Wịk Monkan tribe it is of the second cousin type, i.e., with the father's mother's sister's daughter's daughter.

It would be impossible to live for long in close contact with the Wịk Monkan people and deny their knowledge of the relation between sexual intercourse and pregnancy. It is revealed repeatedly throughout their social life, and it is implicit in their mythology. "A woman cannot get a child for nothing," my informant stated.

But in spite of this knowledge, which is very different from that recorded by some workers in Australia, "a baby totem center" (pụk au'wa), exists in one of the clan territories of the Wịk Monkan, at which ceremonies for the increase of babies are carried out. At a superficial glance this may appear to be incompatible with a knowledge of the relation between sexual intercourse and conception. A careful examination of the facts must therefore be made so that the relation of this cult to the knowledge of physiological paternity may be understood, and the whole oriented with the totemic system.

The Wịk Monkan recognizes, and freely affirms, the fertilizing influence of seminal fluid (tänkärrä), but on the physiological aspect of conception and pregnancy, his knowledge is less exact. He recognizes that pregnancy results from the introduction of seminal fluid, but as to how the embryo is produced, his ideas are as vague as those of any white man who possesses no biological knowledge. His belief is that the seminal fluid enters the uterus (pọ'ọ mompa) and gradually builds up the body of the embryo, and thus he insists that a single sexual act is not sufficient to produce conception, which can result only from repeated intercourse.

At Mapoon Mission on the Batavia River a young man came to me and complained bitterly that he had been induced to marry a girl, who had subsequently given birth to a child of which he was not the father. He admitted that he had had sexual intercourse with the girl before marriage, but he affirmed that as this had occurred only once, he was sure that the baby that had been born later could not have been his own. Nothing that I could say to him would shake his belief: married men, he declared, had told him that conception followed only after repeated acts.

PREGNANCY AND CHILDBIRTH

The actual statements of my informants, in the Wịk Monkan language, are set out in full below, for they reveal not only the beliefs about conception and pregnancy, but also that these people recognize most of the important indications of pregnancy that form the basis of present day diagnosis.

päm etjina wäntj ma'a yotäm'[4] etjina pytta
(The) man copulates with (the) woman many times; copulates until
pyk owun n'yill tänkärrä etjina n'yill tänkärrä etjina ma'a
baby finds. He semen copulates; he semen copulates, many
yotama ma'a yotama tänkärrä n'yill ark wǫi'yin ŋätän akǫiyäk
times, many times. He semen it road (canal) closes menstrual
blood for.

"That tänkärrä blocks," added my informant.

akǫi känä wänt'n 'ŋany pykkäk nät'
Menses finish stop: me child for might (be).

"The man now starts to give extra food to that woman to help that body," my informant said.

n'yill tänkärrä tip mäkän päm pyttäm wäntjkyntj
It (the) semen belly sticks; (the) man again wife his
etjin n'yilla pyk emän[5] tänkärrä ŋǫntjin ǫi'yin pek
copulates with. It (the) child grows. Semen goes in hole inside,
tita mompäm[6] wyn pek pyttämä n'yilla päm wäntj nonändäm
egg uterus in lies inside. Again he (the) man woman his
etjin pyttämä ma'ǫi n'yillä wäntjä tau'wän ŋai'ya
copulates with again plenty times. She (the) woman speaks, "I am
pukkätäm n'yillä wäntj ŋatjim yerp ännän pyk mer
child with." She (the) woman feels hypogastrium heavy baby eye
pitj'n
break.

akǫi wänt'nä pytt'pyttämäk ark ŋé'yin akǫiyäk
Menses left off again more for waiting for (anticipating) menses for
pyt ya'a pyttämä käp tonäk n'yillä ŋarntäm ŋé'yin[7] pyt
but nothing; more (again) moon another for she anticipating, but

[4] Ma'a yotäma, plenty times, is idiomatic. Yotäma means plenty, ma'a, hands; hence the literal meaning of the phrase is "plenty hands." The word is derived from the fact that time is reckoned by counting with the hands. Similarly, ma'ǫi, occurring later in the same passage, is derived from ma'a, hands, -ǫi, a suffix meaning plenty. For example, kek, a spear; kekǫi, literally "plenty spears," is the proper name of the echidna (*E. eculeata*).

[5] See also emät'n, grower, page 384.

[6] Mompa is applied to the foetal membranes and to the placenta, pǫ'ǫ mompa to the uterus.

[7] The expression above, ark né'yin, is used for "looking forward" to a thing, anticipating: ŋartäm né'yin is, however, used for expectation of the *recurrence* of something.

ya'a mer puk pitjin putä pukktäm ŋul
nothing. Eye baby breaks but child with now.

The belief that repeated sexual acts are necessary to build up the baby from seminal fluid is evident in this statement. The recognition of the cessation of the menses as an early indication of pregnancy is of interest, as is also the conception of the closing of the genital passage which is, of course, a biological fact, in the formation of the plug of mucus in the internal os. The natives also associate with pregnancy the appearance of the *stria gravidarum* on the hypogastrium (yerp), although they attribute the *stria* to the fingernails of the unborn child rather than to the distention of the abdominal wall. The Wik Monkan believe that there is a bag (mompa), the name applied to the foetal membranes and also to the placenta, in which the seminal fluid is stored, and within which it assumes gradually the form of an egg (tita). At first this bag (pǫ'ǫ mompa),[8] which my informant described as ark pukkäk (place baby for), is situated in the hypogastrium.

My informant suggested that the reason old people did not have babies was because "they start to shut this place," and again that "old people do not go much," i.e., they become impotent.

The following is a description of the early signs of pregnancy as given to me by a woman informant:

When the woman becomes aware of the cessation of the menses she talks only to her husband and to her mother. People notice now that the breast (pap) enlarges and changes, but they do not yet speak openly of her condition. The nipples (pap mer, literally "breast eye") become black (ŋottändäm). Then the hypogastrium swells. The woman is not yet known as impänäŋ.[9] The navel (kǫrt'n) is now thrust outward and everybody knows definitely that the woman is pregnant. Her entire body enlarges (kempitti),[10] her abdomen grows bigger (tip kän emän, stomach starts growing).

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[8] The uterus; while mompa includes the foetal membranes, pǫ'ǫ is the generic name for the female pudenda; pǫ'ǫ mompa is therefore literally "the bag of the genitalia," the uterus.

[9] Impänäŋ is the name applied to a pregnant woman. It is derived from nonk wonka tonn, a restricted language, apart from the language of ordinary conversation (wik), that is reserved for certain specialized uses, particularly in speaking in the presence of relatives of certain orders before whom ordinary speech is prohibited. Tip is the ordinary or wik word for belly; impan is the nonk wonka tonn word, hence impänäŋ, belly-with (-än) is a pregnant woman. (For a fuller account of this restricted language, see Thomson, The Joking Relationship and Organized Obscenity in North Queensland, American Anthropologist, Vol. 37, pp. 460–90, 1935.)

[10] Kemp, body, -itti, suffix meaning big; hence kempitti, big body.

At this stage she begins to be known as ɨmpänäŋ, a name that is used as a term of address, even in polite conversation, and takes precedence over the kinship terms in general use. Her husband is now known as ɨmpänäŋ wʉnpʉn (ɨmpänäŋ, the pregnant one; wʉnpʉn, placer, begetter), a term also used in place of the usual kinship terms. This terminology may be extended to other relations; e.g., the father's younger brother may be called pip emät'n ɨmpänäŋ (the growing father of the pregnant one).

The pregnant woman is now subject to a great many tabus, especially to restrictions on the eating of certain foods.

No pregnant woman may eat the large water snake popularly known as Javan file snake (*Acrocordus javanicus*, mɨn mʉllai), and there are numerous restrictions on the eating of other foods, especially of small furred mammals (mɨn ŋätj) such as the native cats (*Dasyurus*), bandicoots (*Isoodon*), and also goanna (*Varanus sp.*). She may eat only small goanna, especially a little spotted one (mɨn pʉpärrä), young native cats (mɨn yäŋäntän), young bandicoots (mɨn pʉk [mäny']), but not the adults of these animals, nor any big *Varanus*. Emu (mɨn ątjimba) is especially tabu (ŋaintjä), and she must not eat even the chickens or the eggs of this species, lest the child should have weak knees (pʉnk, knee, mɨtji, soft, weak). She may eat any wild honey, except that of a certain species of very small bee or from a nest in a leaning tree up which fire has travelled, lest the baby should have "boomerang" legs (yänk wɨntj).

Nor may she eat native companion (mɨn korra), jabiru (mɨn mont), pelican (mɨn mǫrt), flying foxes (*Pteropus scapulatus*, mɨn wʉk, and *Pteropus gouldi*, mɨn okämättä). Among fish she is especially forbidden to eat large specimens of rock cod (mɨn nombä'ŋombɨn), night fish (mɨn wonkäm), a stingray with tubercles on its back and a short tail (mɨn mʉttä), and a stingray with a long tail (mɨn wäŋän).

On no account may she eat any old male wallaby or kangaroo of any species (mɨn bʉrrɨŋän, a term generically applied to the old male animals), but she may eat a female (mɨn o'läk), and she may eat a species of fresh water tortoise (mɨn pʉntjai).

All snakes, as well as certain other reptiles, are tabu. Chief among these are the black-headed python (*Aspidites melanocephalus*, mɨn yumątji), scrub python (*Python amethystimis*, ǫi'ŋǫrpän), carpet snake (*Python spilotes*, mɨn pǫla), and rock python (*Liasis fuscus*, mɨn tɨntau). The crocodile (mɨn pik'ʉ) and its eggs (mɨn pik'ʉ tit) are tabu. But she may eat the eggs of scrub fowl (mɨn tjokolok), scrub turkey (mɨn kǫnt), Burdekin duck (mɨn kǫ'än), and black duck (mɨn temp). No restrictions are placed on the eating of vegetable foods.

The tabus on the eating of all these foods remain in force until the baby walks about (puk kän i'n), when all, with the exception of those on the eating of emu and plain turkey (min mäntäbä, plain turkey) terminate. The woman may now, however, eat old male wallaby or kangaroo. The tabus on the eating of most of the birds named above are removed gradually as the child grows, the last being those on the eating of emu, the turkey, and jabiru, which remain in force until the child is able to speak properly (täŋänt tai'yin, tongue strong). If the mother should break any of these food tabus, the child will develop sores (ŋaintjim) on its head.

But during pregnancy the imposed tabus are not confined to the woman, for the husband of the pregnant woman is also prohibited from eating certain foods, chief among which are emu, plain turkey, and native companion. He may eat wallaby (min pänk, specifically *Macropus agilis*), even the old males, except those with very large forepaws (min pänk burinän ma'-itti).[11] Neither the man nor woman may eat a wallaby or red kangaroo (*M. rufus*, min kɑimpi) that has been killed by a bush dog (kɑ'a nekänäm), but if killed by a camp dog (kɑ'a) he may eat it. If this tabu were broken the child would always be sick and thin (puk alpana, a poor, sickly baby). This tabu must be observed by the father until after the child walks, and until it is able to speak well. Nor may the man eat rock cod or the two kinds of stingrays mentioned above.

When the birth of the child is imminent, that is, at the onset of labor pains (tip kän pikän, belly strike), the husband moves to the single men's camp, and the woman moves at once to a shelter (ark ŋɑink, literally "a shelter place") some distance from the usual camp. This place becomes tabu and is known as the ark ŋänwi; it may be visited only by women until after the newly born child has been presented ceremonially to its father.

The following account, given to me by a woman, of the birth of a child up to the time it is presented to its father is written in the exact words of my informant.

wäntj pe'inäk enk taa int'näk ŋänk ŋul
(The) woman minding for sides rub heart forehead (precordia)

wäntj pe'inäk yerp put mänk ŋäk kɑrtra[12] ŋɑrtj kän
woman minding for hypogastrium and back water head mucous finish

pitj kutjäk kän pent'n känä n'yillä katkuntj
break head for finish coming out. "Finish!" She mother its

[11] Ma'a, hand, paw, -itti, suffix to express bigness; see also footnote 10.

[12] The amniotic fluid, literally "the head water;" kɑrta, head, also kutjäk.

yäm'yäm n'yin ark wänt'n pukkäk kɑrt'n wunyatän wa'änäk
a little distance sits place leaves child for navel ? call over

nämpäk n'yill känä nämpä ne'in wäntj pentjändän puk wɑt'o'oh[13]
name for. It finished name heard woman. "Child boy!"

kɑrt'n we'ä kɑrt'n n'yill'o päm'älkän'oh
"Navel who?" "Navel (name) it (is) Pämälkän (personal name)."

After the birth of the child the navel name (nämp kɑrt'n) is determined by divination. The midwife takes the umbiiical cord in her hand and shakes it, at the same time calling aloud names of various relatives of the child. The name called at the moment the placenta is delivered is the name of the baby. The umbilical cord is cut a few inches, about a finger length (ma'a puk),[14] from the navel and is left until it dries and falls off. It is then encased in beeswax and carried as a token or charm by the individual whose name the child has taken. The afterbirth is buried at once. The relatives whose names may be called are the father and father's brothers and sisters, the child's actual brothers and sisters, mother's brothers and sisters, but not the mother herself, father's father or mother's father, as well as many other relatives of a similar order, actual or classificatory. Thenceforth a special relationship exists between the baby and the one whose name it has taken: they are "those two (one) navel (name)" (pull kɑrt'n). To one another they say, "We two (one) navel (name)" (ŋäll kɑrt'n). Some weeks later the baby, painted and decorated for the occasion, is ceremonially presented to the person whose name it has taken.

The following is an account of the finding of the navel name by divination, as given in Wik Monkan by an informant:

kɑrt'n ompän ompän tjill onk ka ma'a puk mompäm
Umbilical cord cut, cut little bit long like finger. Afterbirth

wukurräŋ kampän kɑrt'n wäntän n'yill n'yilläm
bury cover navel leave all alone (lit. it it, i.e., by itself)

e'emän wäntjinta kat pi'in
dry itself old woman. Mother big (i.e., own [physiological] mother)

kem waiyo ŋɑink'ŋ pe'indän pullmäny'
mother's mother shelter in mind woman who has given birth

[13] Wɑt, old man, is also used to denote male sex in children and in certain animals in which the sexes are not distinguished by separate names, e.g., min kɑlan wɑt (a male opossum, *Trichosurus*).

[14] Ma'a, hand, puk, child; hence the fingers are literally called "the children of the hand."

n'yenkänäm nynta ke'än ma'a yotäm wyn pykän tätättänä
new to remain nothing long time stays child there watching
kemp ŋotn'ätän pyk ka'ätäm kemp met ark ŋai'ịn pyt
skin black turning. Baby at first body white (light) born. From
nämnäm ma'a tjịllọi wyn n'yịll kemp kän notn'män pyt kọrt'n
there hand little stay it body finish turn black, until navel
kekän kempäŋ putta nämmänäm pipkuntjt
falls body from from there father its to.

CEREMONIAL PRESENTATION TO THE FATHER

Following the birth of the child the mother remains in isolation in her shelter for a period of from two weeks to a month. During the whole of this time neither the father nor any other man may see the mother or baby.

During her seclusion the mother is attended only by her female relatives, especially by her own mother (kat), ŋätjawé'o, mykk waiyo, mother's mother, and her sisters. The older women remain almost constantly with her, while her mother and sisters go hunting. As she grows stronger, she may walk about accompanied by these relations, but she must not be seen by men. When I asked my informants how this could be prevented, they replied simply, "The men know which way they go and therefore avoid that place."

After the birth of the baby, the woman, known throughout the period of pregnancy as impänäŋ, is now called pyllmäny n'yenkänäm (the new pyllmäny), and except when she is again pregnant is called pyllmäny' (woman who has borne a child) for the rest of her life. The child is known as "tabu child" (pyk ŋänwi) until after its ceremonial presentation. The father is ŋänwi wynpyn, or more correctly ŋänwi ŋärrpän, for the use of ŋonk tonn, the indirect language to which reference has already been made, is preferable to ordinary speech at this stage. After the ceremony the father becomes "placer or begetter of the child" (pyk wynpyn). The relatives of the father are also distinguished in the same way by terms which express their relationship to the child rather than by personal names. Thus the father's elder brothers and sisters become ŋänwi pịnjin, his mother's elder brothers and sisters are ŋänwi mykkänjin—the pịnya or mykka respectively of the newly born child. The name of an adult individual is almost never called aloud, nor is it employed as a direct term of address. If the use of the appropriate kinship term is not sufficient to distinguish an individual, the name of a child or even of a brother's or other relative's child may be used, as in the following: "The father or begetter of Pämkotjättän!" (Pämkotjättän wynpyn). And I have heard a women hailing another from a long

distance as, "Pịnya of Pämkotjättän" (Pämkotjättän pịnjịn), in this case the father's elder sister of Pämkotjättän, who was a little girl.

The ceremonial presentation of a child to its father that is described below took place on the Archer River in May, 1933. On this occasion the new mother was attended by her husband's mother to whom she applied the term father's elder sister (pịnya). The relations (päm kämpän) squatted on the ground, the father a little in front as shown in Plate 8. Meanwhile, in the tabu shelter the mother and baby had already been painted in preparation for the ceremony, the mother with white clay (pịp met) only, the body of the baby smeared first with red ochre (wa'a) and then painted with white. Its breast was marked with longitudinal streaks of white, and it was adorned with a mother of pearl breast pendant (onkäm); one necklace of mother of pearl nacre (männ ättuwa) was placed on its forehead and another on its neck with native companion feathers inserted under the latter.

With the baby in her arms the mother now left her shelter and advanced slowly toward the waiting relatives. The old woman walked behind her carrying a bird's wing fan (pụnta pam ko'än), in this instance made from the wing of a magpie goose (ko'än), for the purpose, according to native statement, of driving off the flies that might follow from the place of seclusion. This was said to symbolize the severing of the association of the mother and child with the tabu place. More often it is the mother's mother (kemä) of the mother, a very old woman (who stands in the relation of elder sister [yạp] to the baby) who follows the mother with the fan. A quantity of vegetable food, chiefly mai ka'arra and mai wättiyi, is usually carried by the new mother, but if she is too weak, by her mother's mother. But this time the presentation of mai was omitted.

The mother slowly approached the group seated on the ground. This was the first glimpse the father had had of his infant, but he sat with eyes downcast:

pịp	ka	tụtj'näŋ	n'yin
Father	nose (face)	bowed with	sits

When the mother reached the group she approached her husband and walked twice around him in the same direction; after which she walked towards his eldest sister (pịny' mäntaiyịn)[15] (plate 8, fig. 7), and completely encircled her as she sat on the ground, the old woman still following closely behind with the fan to drive off the flies. After this the mother walked up

[15] Mäntai'yịn is a "big" person, an elder, a person of special importance in some aspect of social life, e.g., wọt mäntai'ịn, a big man, literally a big old man.

Ceremonial presentation of a child to its father among Wik Monkan. Group of relatives awaiting the arrival of the mother with the baby. 1, Father's younger brother; 2, Father; 3, Father's elder brother; 4, 5, 7, Father's elder sisters; 6, Father's younger sister; 8, Mother's mother of the child. (The postures are typical attitudes assumed on ceremonial occasions.)

Mother and child, painted in readiness for the ceremonial presentation, at the place of seclusion. To the right, the father's mother, the attendant during seclusion.

to the father, and seating herself before him, presented the baby to him. The food is also usually presented to him at the same time. He takes the food and looks at it, but he may not eat it: this is the privilege of his father (pǫla, the father's father of the child) and of the mother's father (ŋätjä).

When he had received the child in his arms, the father passed his hand under his axilla and rubbed the sweat, or "smell" as the natives say, on the head of the child (plate 11).

pip wụnpụn ma'a yuänäŋ tentj pǫrntjilaŋ[16] pụk te'än
(The) begetting father hand axilla at wipes smell with child smears.

Then the mother in turn rubbed her own axillary sweat on the shoulders (pitjäm) of her husband (plate 11).

The object of this rite was to avert the bad luck in hunting that might otherwise ensue.

In addition the father rubbed his axillary sweat on the knee and elbow joints of the child; then taking each of these in succession between his teeth, he bit it gently in order that the child might grow strong.

SOME ASPECTS OF FATHERHOOD

It is usually stated that, to the aboriginal, fatherhood is purely social, and that any conception of a physical bond between father and offspring is foreign to the native idea of this relationship. It must already have become apparent that the father among these people is very different from the father as described hitherto for most Australian tribes. The conception that "group marriage"—a hypothetical state wherein a group of men consorted more or less indiscriminately with a group of women, and nobody knew his own father—was formerly practiced universally in Australia was held to be responsible for the fact that the same term was applied without any apparent distinction to the physiological father, and also to a number of men who were brothers of the father. This conception has not only left its stamp on much of the early theoretical work dealing with Australian aborigines, but also has exerted a profound influence on field workers.

I have shown that the natives of this tribe are aware of the fact that pregnancy and sexual intercourse are related, and that they recognize and speak freely of the fertilizing power of seminal fluid. But they go far beyond this, and in employing the kinship term for father, they recognize and distinguish by the use of special terms, between the physiological and

[16] Although it is actually sweat (kịmp) that is employed, the word pǫrntjil means "smell;" therefore the application of the father's or mother's "smell" is a vital part of this rite.

sociological aspects of this relationship. This fact is emphasized in the ceremonial presentation of the child to its actual father, its pip pynta wynpyn (pip, father; pynta, arm; wynpyn, place), as described above.

The generic kinship term for father is pip, the reciprocal term, nenk. A child has only one pip wynpyn, although it may have many pip. Thus all the father's younger brothers are pip mäny', little fathers; but one, usually the one immediately succeeding the father, is called literally the growing father (pip emätt'n). Under the levirate a man may marry the wife of a deceased elder, but not of a younger, brother. Socially this man is already "father" to his elder brother's children, and they already call him pip. Since he will have first claim to the widow of his elder brother, i.e., since he is the potential husband of the widow and adopter of the children, he is known as their "growing father." Thus any man who may marry the mother of the children may become their "growing father."

The actual brothers of the father, to whom the term father is usually extended in the kinship system, are sharply divided into two groups according to whether they are older or younger than the father. Thus while the father and all his younger brothers, own and classificatory, are pip or pip mäny', the elder brothers of the father are pinya or pyk pinjin, and although they take a great interest in the child, they are in a different category from the father and his younger brothers. This distinction between the elder and younger brothers is evident even before the child is born, from the days when its mother is first pregnant. The husband of a pregnant woman is distinguished by a name applied to the actual husband only (impänäŋ wynpyn), while his immediately younger brother is "the grower of the pregnant one," (impänäŋ emätt'n), the man who will marry the pregnant woman if her own husband should die. At this period the elder brothers are all impänäŋ pinjin. At birth the father is ŋänwi ŋärrpän;[17] the younger brother of the father is ŋänwi emätt'n, and the elder brother is ŋänwi pinjin.

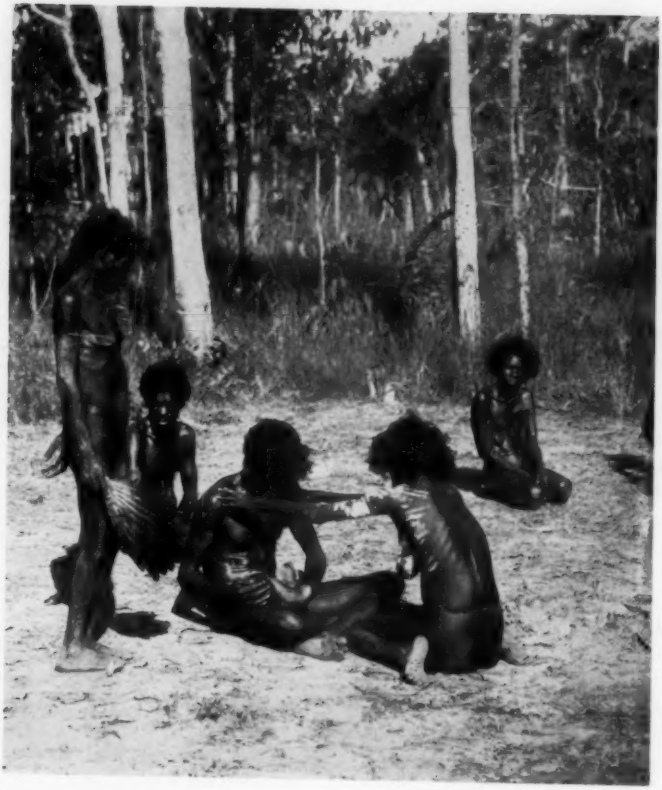
But this distinction between the older and younger relatives is not confined to the brothers of the father; it extends also to the mother (kat) and her sisters. A child has many kat, but again only one physiological mother, kat pi'in, literally "big mother." Of her own child a woman says:

pyk ŋai'ya tip ŋai'ya källän
Child I belly I carried.

"The child that I carried in my belly." The real mother is referred to by others as:

[17] Nänwi ŋärrpän belongs to the special tabu language, as impänäŋ does (see footnote 9).

The mother encircling the father.



The father rubbing his "smell" on the child, the mother hers on the father.

kat ŋonändäm tip käll'n
Mother his very own belly carries.

If a man or woman wishes to stress the fact that he or she is a full sibling of a third person, he will speak of him or her as tip tonäm, belly one, i.e., from one womb.

All the younger sisters of the mother, who are potential wives of the father, or father's next younger brother, are kat mäny', little mothers, to a child. One of these, usually an actual wife of the child's father or of the "growing father," is the kat ɟkkänpuŋän, the adopting mother. She will adopt the child if the mother should die. As she is the younger sister of the mother, she is often already married to the same man, or if unmarried, is his potential wife.

As with the elder brothers and sisters of the father, those of the mother are grouped together as mukka. They are the potential husbands and wives of the father's elder sisters and brothers. One of the important aspects of this elaborate terminology is the stress it lays on the distinction between the physiological and sociological aspects of paternity, and the provision for the adoption of children. While there is only one begetter, all the younger brothers of a man are potential husbands of his wives, the mothers of his children. They are recognized as fathers in the classificatory sense; but only one, he who will marry the mother of the children, is the "growing father;" and only one woman, usually the wife of this man, is the "adopting mother." On the other hand, none of the father's elder brothers may marry the widow: they are not potential adopters of the child. With the father's elder brothers are grouped the father's sisters, both older and younger. In keeping with this distinction is the fact that the pattern of behavior of the child toward the father's younger brother is very similar to that obligatory to the father himself, but towards the elder brother, who has a considerable amount of control over the child, more restraint is expected: the pattern is one of respect and deference rather than that of love and freedom which characterizes the relationship with all those to whom the term pip is applied. When I asked a woman how a child behaved towards its father, she replied, "They play up" (män kenn), then she added, "They behave half like naughty children." The greatest indulgence is shown by a father to his children. When they play up he pretends to be angry; he makes signs of anger such as protruding the tip of his tongue between his teeth, a gesture called tep bättän or täŋänt bättän (tongue biting).

Subject to certain tabus and restrictions, a father feeds his own children. But he may not eat any vegetable food (mai') provided by his daughter until she is a well grown girl (kommän), nor may he eat any food killed by

his son until the boy is partially initiated, that is, has passed through the first stage of initiation (ŋänwi) known as ʉtjĭnäm. The first foods taken by a boy are eaten by his grand-parents including his father's father (pǫl wǫt; pǫl, father's father, wǫt, old man), father's mother's elder brother (ŋätj wǫt, i.e., his father's mʉkka), because that are "big men." Neither of the parents may eat food of any sort procured by the young child, even when it brings little offerings of food gathered in play.

If further evidence is required to prove the belief of the Wĭk Monkan people in the fertility of seminal fluid, it is provided by the myth of Käpp, the moon, who formerly dwelt on this earth as a man. Because of the importance of this subject and the bearing that it has on primitive psychology, I give the native text just as I took it down. It loses nothing as evidence by the fact that it was obtained originally merely as a myth, with no prior knowledge of the light it would shed on the subject of the present discussion.

käpp wĭk kät[18]
Moon talk old

ka'ätäkäm päm iä käppä mĭn kǫi'yä iyäl[19] ompi'yin
Long ago man was Moon. Fish string fish poison (he) cut,
teppĭyĭn kättiyĭn kättiyĭn kättiyĭn ŋäkk'ŋ teyĭn teppĭnyĭn
hammered, tied up, tied up, tied up; water in threw, hammered,
teppĭnyĭn mĭn ampäŋä tjintayĭn pantiyän ŋaŋämä käppä
hammered. Fish rose up (he) speared. (He) slept; at daybreak the moon
tutja mĭna momonkiyĭn wäntjĭnta worr ampäŋ
sank down fish he was eating. (An) old woman got up (from sitting)
pekä tätta wäntjĭnta tau'wa mĭna än pek ʉtämä ŋai'yä
down looked (the) old woman spoke, "Fish there inside dead. I
workamana tutja eppänka tonn wǫrkäm koiyam eppank
shall swim." Sank, turned round. Another swam, back turned round.
wǫt wǫrkäm ya'a tättä wǫta tonna wǫrkäm ya'a
(An) old man swam; nothing saw. Old man another swam; nothing
tättä wǫta tonna wǫrkäm ya'a tättä wǫta tonn wǫrkäm
saw. Old man another swam; nothing saw. Old man another swam;

[18] Kät is most frequently used in the sense of bad, stinking, decayed; in this sense when used for "myth" it simply means old, old fashioned; wĭk kät, talk of olden times, hence a myth or legend.

[19] Mĭn is any animal food, in this case fish is intended. Iyäl is the dynamite plant (*Derris trifoliata*, var. *macrocarpa*); kǫi'ya, string, the vine or liana of this plant, which is gathered and tied into tight bundles for use in poisoning fish.

ya'a tättä wǫta tonn ŋųl wǫrkäm ya'a tättä wǫta
nothing saw. Old man another now swam; nothing saw. Old man
tonn wǫrkäm ya'a tättä wǫta tonna wǫrkäm ya'a tättä
another swam; nothing saw. Old man another swam; nothing saw.
wǫta tonna wǫrkäm ya'a tättä wǫta tonna wǫrkäm
Old man another swam, nothing saw. Old man another swam;
ya'a tättä
nothing saw.

wǫt tonn tänp' tonn ŋųl wǫrkäm tonn ŋųl
Old man another bumped into. Another now swam. Another now
wǫrkäm wäntjinta wäntjinta tonn wǫrkäm wäntjinta tonn
swam old woman. Old woman another swam. Old woman another
ŋųl wǫrkäm wäntj tonn wǫrkäm wäntj tonnäm wǫrkäm
now swam. Woman another swam. Woman another swam.
päm kompä wǫrkäm kompä tonn ŋųl wǫrkäm pųk ųtjin
Young man swam. Young man another now swam. (A) little boy
wǫrkäm ųtjin tonn ŋųl wǫrkäm ųtjin tonn ŋųl wǫrkäm
swam. Boy another now swam. Boy another now swam.
kompä tonn wǫrkäm kompä tonn wǫrkäm kompä
Young man another swam. Young man another swam. Young man
tonn wǫrkäm pųk ųtjin wǫrkäm ųtjin tonn ŋųl wǫrkäm
another swam. Little boy swam. Boy another now swam.
komp tonn wǫrkäm kompä tonn wǫrkäm kompä
Young man another swam. Young man another swam. Young man
tonn wǫrkäm pųk mäny' wǫrkäm ųtjin wǫrkäm wäntj wǫrkäm
another swam. Baby small swam. Boy swam. Woman swam.
pųll kommän wǫrkäm owä pųll owä pųll
Those two young women swam. Found those two; found those two;
owa pullä pųll kommän kän pimpa
found those two; those two young women. Peeped out (from water)
pųnta mämmä[20] pullä ŋ kän etj' pųll etj' pullä ŋ
arm seizes those two copulated, those two copulated those two with;
etj' pullä ŋ wany' matättä tättäi'nyi
copulated those two with. On top (above) go up. "Look out,

[20] Pųnta is the arm or brachium; ma'a pųnta, literally "hand arm," is the forearm; hence ma'a pųnta mämmän, forearm seize, is the term for any forcible seizing of a woman, especially for marriage by capture, which was of frequent occurrence in former time on the rivers about Albatross and Archer Bays, on the Gulf of Carpentaria.

(tättäi' ŋänyi) tänkärrä kän[21] yetjiŋ ni'ndä päm
look at me. Semen poured out for you all." (A) person,

wǫt wämpä i̱n wai'yä tonn wämpä i̱n wai'yä
(an) old man came. "This (is) bad!" Another came, "This (is) bad!"

tonn wämpä i̱n wai'yä tonn wämpä i̱n wai'yä
Another came, "This (is) bad!" Another came, "This (is) bad!"

wäntjinta wämpä i̱n wai'yä puk u̱tjin wämpä i̱n
(An) old woman came, "This (is) bad!" Baby boy came, "This

wai'yä puk mäny' wämpä tättä i̱n wai'yä u̱tjin wämpä tättä
(is) bad!" Baby little came, saw, "This (is) bad!" Boy came, saw,

i̱n wai'yä wǫt wämpä i̱n wai'yä puk mänya tonn
"This (is) bad!" Old man came, "This (is) bad!" Baby small another

wämpä i̱n wai'yä wǫt tonn wämpä i̱n wai'yä
came, "This (is) bad!" Old man another came, "This (is) bad!"

wǫt tonn wämpä i̱n wai'yä
Old man another came, "This (is) bad!"

käppä tau'wa ŋaiyäm mu̱nkäŋä ma'äŋ maiyäŋ
(The) moon spoke, "I myself will eat (it)!" Hand with picks up,

mu̱nka ta tekä te'e ni'yä utämännäŋ ark ompǫiŋäm ŋai'yä
ate. Mouth speak threw, "You will die for good. I

te'äŋ wunäŋ ŋai'yä u̱tämmäŋä ŋai'yä pentäŋa pu̱ttäm
throw, lie down, I shall die. I shall get up. Again

utämmäŋä ŋai'yä pentäŋa pu̱ttäm u̱tämmäŋä nämmänäm
(I) shall die. I shall get up again. (I) shall die from there;

iäŋ ŋänkä te'äŋ[22] nämmänäm u̱täm pent kǫiyäm pent
(I) shall go heart throw." From there dead come out again, come out.

The following is a free rendering of the myth.

Long ago, when the moon was a man, he went fishing. He cut some stems of the dynamite plant which was used as a fish poison, tied them into bundles, hammered them, and threw them into the water. When the stupefied fish rose to the surface Moon speared them; then he slept. At daybreak, as he was eating his fish, he sank down under the water.

An old woman got up, looked down into the water, and cried, "There are some fish down there dead; I shall swim for them." She went down but she turned back without getting any fish. Another old woman swam, but she too turned back. Then an old man swam, but he saw nothing. Another old man swam, and then another

[21] Kän, finished, in each instance signifies past tense.

[22] An idiomatic phrase, "I shall rest."

and another but they all saw nothing. One of the old men only bumped into one of his fellows; then another tried. Then an old woman went into the water. Still another old woman went down, and then little boys and girls; but they did not see anything there. At length two young women went into the water. They found it (fish?). They peeped out of the water, but Moon seized them and began to rape them. He copulated and copulated with them; then he came up and said, "Look at me; I am pouring out my semen for you all." But an old man came and said, "This is bad!" And another old man came, and he also said, "This is bad." Still another came, and then an old woman, and after these other women, and young boys and children. Each in turn looked at the semen, but they all cried, "This is bad!"

At length Moon spoke, "I shall eat it myself!" He picked up his own semen and swallowed it, and then cried, "You shall all die altogether. I shall lie down; I shall die, but I shall come up again. After that I shall die again, but I shall come up again and again. After that I shall rest, but each time I die I shall come back again." So, after the old moon dies he rests awhile, but the new moon always appears again later.

The legend of the moon is associated with the Moon totem center, käpp au'wa, at ark käppau'wäŋäm (literally, place Moon totem center belonging to) on Archer River.

BABY TOTEM CENTERS

Reference has already been made to a baby totem center (puk au'wa) at which rites for the increase of babies were carried out. The existence of a baby totem center has often been taken as final proof that these people were ignorant of physiological paternity.

I shall not recount in full here the long myth that tells of the origin of the baby totem center, but will give in outline that part which is associated with the totem center and its relation to totemism and to the knowledge of physiological paternity.

The totem center is situated at Ark O̲rnyau'wa on the south side of Archer River, about fifteen to twenty miles east-southeast of the mouth. Ark is a place, a country, or a native land. O̲rnyä is the Wik Monkan name for a ghost or spirit, generally the ghost of a dead man or woman; au'wa[22] is a totem center, or any source of plenty. The O̲rnyau'wa clan was a large and powerful one, and like many of the outlying clans of the Wik Monkan tribe, its language showed a few dialectical peculiarities. For this reason it was sometimes spoken of as if it were a separate language, Wik Ornya.

[22] Au'wa is also used idiomatically in an abstract sense for any habitual action, e.g., a curious person is ka taiyin enkän wentä, literally, nose strong asking mad; hence ka taiyin enkän wenta au'wa is a person who habitually asks questions, a person with an insatiable curiosity.

But my informants added that the differences were trifling, and that it was in reality Wik Monkan.

A myth tells that in the beginning a "little man" (päm mäny' mäny'), a little ghost, ŋrnyä, lived at Ōrnyau'wa with a little woman. They were diminutive people; dwarfs, not babies. My informants declared that a ghost or spirit is always small at first, soon after death, but later it grows bigger. At first there were only these two people, the man and the woman; no others. They went hunting together, and they copulated and copulated.

wäntjkuntj[24] tau'wä 'ŋäll i'ällä put puttäm wämpull ark
Woman his spoke, "Let us go." Once again go back place
ŋoink'ŋ kän wun wäntj punka tän
shade (any leaf shelter). Lay down (the) woman knees raised.
pulla etjwo pulla ma'a yotäm etjind puk
Those two copulated; those two plenty times copulated. (A) child
wunpund wäntjkuntj impänäŋ ŋul i'i tjpänd
begot (lit. placed). Woman his pregnant. Bye and bye was belly with
ta'ayi ŋul puktäm
big, bye and bye child with.

This passage shows that even in the myth of Ōrnyau'wa, the relation between sexual intercourse and pregnancy is stressed.

After this the man and woman made the baby totem center.

ark au'wä pukkäk ŋul yumpän
Place totem center baby for bye and bye made.

When they had created the big swamp at Ōrnyau'wa they made a representation of the female genital organs, now associated with Pantiau'wa, the "sweetheart au'wa," as the natives speak of it today. Then they left their children in the big swamp, and the children played there and sunned themselves on logs as they came out of the water. Since, the totem center has sunk and they are no longer to be seen, but the place is still associated with babies and called puk au'wä.

Every living member of the Ōrnyau'wa clan is represented by a tree that springs up in the totem center. This tree starts to grow as soon as a woman becomes pregnant, and continues to grow throughout the life of an individual. Among the species of trees that represent members of this clan are eucalyptus (*Eucalyptus papuana*, yukkä puttä), fig (*Ficus opposita*. yukk kommä), and milky pine (*Alstonia scholaris*, yukk tantjil).

[24] The suffix -kuntj denotes possession, his, belonging to him.

My informants cited an actual instance in which a tree associated with an Ọrnyau'wa man had been cut during his lifetime. The tree withered and gradually died; when it commenced to wither the man sickened, and as the tree dried up and slowly died, so the man declined and died too.

Pantia is a lover or "sweetheart." If a yam stick is thrust into the part of the center that represents the vagina, sexual license (marṭji) spreads all over the country.

At the baby totem center at Ark Ọrnyau'wa increase rites (au'wä kent'n) were performed by men and also by women when they wished babies to go to other places. The center itself is said to have sunk out of sight under water, but the breaking off of the tops of termite mounds close to the totem center today constitutes the increase rite. As this rite is performed, the names of places to which it is desired to send babies are mentioned. Sometimes the names of individuals may be called, especially, my informants added, in the case of a woman who is maritji, "too much run about," and who will not remain with her own husband, in order to "make a big row come out," i.e., in order to bring down vengeance upon her head.

DISCUSSION

The facts that have been presented form conclusive proof of the knowledge of the fact of physiological paternity among the aborigines of the Archer River district on the Gulf of Carpentaria. In a previous paper[25] facts have been adduced that show that this knowledge is also shared by the people of the eastern seaboard of Cape York Peninsula.

On account of the controversial nature of the subject, and the fact that the knowledge of physiological paternity is in conflict with the findings of previous workers both to the north and south of this region, considerable care was exercised in the collection and checking of information and in the testing of informants. For this reason I have preferred to depend rather upon the evidence provided by spontaneous statements of the natives themselves made in their own language, especially as recounted in the text of myths, than upon statements in reply to direct questions, where it might be suggested that my own beliefs had influenced my informants.

The statement of the fertilizing power of semen and of its action in "building up" the body of the baby, and the revelation of the life-giving powers of seminal fluid that forms the theme of the Moon myth, are incompatible with ignorance of physical paternity.

Furthermore, the distinction in terminology in the kinship system between the physiological and sociological aspects of fatherhood is in itself

[25] The Hero Cult (*loc. cit.*).

significant enough to place fatherhood in the Wịk Monkan tribe in a category very different from that recorded elsewhere in Australia; e.g., the statement of Sir James Frazer,[26] after summarizing all the available literature on the subject,

> to the European mind the tie between a father and his child is physical; to the Central Australian it is social. If we wish to avoid confusion in discussing the institutions of a race so different from our own, we must clearly distinguish between these two very different conceptions of paternity, the physical and the social, which we confound under the same name.

Nevertheless one cannot but feel that the ignorance of physical paternity was taken for granted by many of the early workers who had come under the influence of the "group marriage" beliefs.

But it is possible that one may be faced with the criticism that these people of Cape York Peninsula are not primitive in the same sense as the natives of Central Australia. Indeed my own work has been directed largely to demonstrating, by an analytic study of their social organization, that at least some of the tribes of Cape York Peninsula have been influenced very strongly by the infiltration of Papuan culture, and even to showing in what way they have reacted under its influence, and how each social institution has been modified by contact with it. It is well known, however, that Professor Malinowski, the most fervid advocate of the belief that ignorance of physiological paternity is a fundamental and primitive one among savage peoples, himself drew most of his evidence from a people who were culturally far more advanced than these natives on the threshold of the Australian continent, the people of the Trobriand Islands and the associated archipelago; a people who had an established village life, who made gardens and planted crops, and who *not only bred pigs but castrated boars*. Nevertheless, Malinowski concludes with the statement:[27]

> My firm conviction is that the ignorance is an original feature of primitive psychology, and that in all speculations about the origin of Marriage and the Evolution of Sexual Customs, we must bear in mind this fundamental ignorance.

Such an ignorance appears to me to be quite incompatible with the facts now presented from a study of the Wịk Monkan people, and with those from the Kọkọ Ya'o of the Lloyd Bay district, that I have recorded in an earlier communication. The life-giving properties of semen, demonstrated by Moon, who after offering his semen to others (all of whom refused and subsequently died, while he alone partook of it and survived to be reborn

[26] Totemism and Exogamy (London, 1910), Vol. 1, pp. 336–37.

[27] The Father in Primitive Psychology (Psyche Miniatures, 1927), p. 93.

each month), seems to point to a knowledge of these facts, the fundamental nature of which cannot be denied.

So far the existence of the baby totem center has been omitted from this discussion. The myth of its origin is typical of those that explain the origin of the totem centers of these people. The fundamental fact revealed in the myth is the discovery by the totemic ancestors (the man and woman who made the totem center at Ornau'wa) of the fact that pregnancy resulted from sexual intercourse, and the importance attached to this is indicated by the fact that at Pantiau'wa the center representing the female genitalia is regarded as the most important of the small centers (au'wä mäny') that compose the whole totem center. The increase rite, the thrusting of a yam stick or other implement into the symbolic vagina, is believed to give rise to babies in no more literal sense than that the increase rites performed at any other totem center give rise *directly* to animals. The belief is simply that a ritual state of well-being results, something like mana, and causes them to multiply.

The existence of this knowledge of physical paternity, which has a fundamental character, in this region lying midway between the areas of Central Australia and Papua, where such beliefs are said to be absent, presents some difficulties. The conclusion that seems to be inevitable is that the ignorance of physical paternity is not primitive but that, as Professor Carveth Read suggested,[28] where it does exist at the present time among primitive peoples, true knowledge has been masked by animistic beliefs, superimposed upon the primitive condition. I consider that the evidence now presented from the Wik Monkan tribe is conclusive, and that if such knowledge is absent from more primitive people to the south, and from the more advanced peoples to the north, the facts admit of no other conclusion.

UNIVERSITY OF MELBOURNE
MELBOURNE, AUSTRALIA

[28] No Paternity (Journal, Royal Anthropological Institute, Vol. 48, pp. 146–54, 1918).

AN OUTLINE OF THE PROBLEM OF MAN'S ANTIQUITY IN NORTH AMERICA

By EDGAR B. HOWARD

STUDENTS of American prehistory have been engaged for many years in attempts to determine the length of time man has existed in the New World. In endeavoring to supply an answer to this question one becomes involved, not only in every phase of anthropology, but in geology, and palaeontology as well, since all play an important rôle in relation to early man in America.

The question of origin is no longer the controversial subject that it once was, for it is generally accepted that man represents a migrant to the New World from Asia where types nearly relative to him now live. When he came, however, depends upon a good many factors which can only be touched upon in a brief review of this kind. Recent discoveries may give the impression that this problem is approaching a solution, but one cannot make even a casual investigation without becoming convinced of its complexity, and discovering the enormous amount still to be accomplished before a clear picture of American prehistory is realized.

The literature on the subject is voluminous and records discoveries, made even prior to the middle of the last century, purporting to show that man had lived in America during the Pleistocene epoch. Such a discovery, which went unnoticed at the time, was made in Missouri by Koch[1] in 1839 of stone points associated with the mastodon. A few years later, in 1846, at Natchez, Mississippi,[2] a human pelvic bone was discovered in association with extinct animals, and in the same state of mineralization. In 1872 Abbott's announcement of the finding of what he considered to be Palaeolithic tools from glacial deposits near Trenton, New Jersey,[3] stirred up a controversy that has never been satisfactorily settled. In 1879 Cope[4] recorded the finding of human and faunal associations in Oregon, and Russell[5] in 1885 reported a somewhat similar instance from Nevada. With these earlier discoveries we cannot concern ourselves very much, for, in most cases, we lack sufficient facts to determine their value as evidence one way or the other. In the light of present knowledge on the subject, however, it may not be out of place to have called attention to these discoveries. There were many others during the closing decades of the last

[1] Koch, Mastodon Remains in the State of Missouri.

[2] Hrdlička, Skeletal Remains Suggesting . . . Early Man in North America.

[3] Abbott, Occurrence of Implements in the River Drift; Spier, New Data on the Trenton Argillite Culture; The Trenton Argillite Culture.

[4] Cope, The Silver Lake of Oregon.

[5] Russell, Geological History of Lake Lahontan.

century of decidedly dubious character, and some statements that have no more to recommend them than the vivid imagination of a so-called antiquarian. In this way man's origin in the western hemisphere has been connected at one time or other with every part of the world, including Egypt, Assyria, and even the Lost Tribes of Israel have been given credit for being the ancestors of the American Indian.

Nevertheless, the old controversy goes on: did man come to America in comparatively recent times, or was he here before the last glacial period? One school of thought has endeavored to place man as far back into the past as possible, while a small but resolute minority of anthropologists have maintained a balance at the other end of the scale, so that somewhere in between these opposing views one may eventually find the truth. It is not essential to the study of our problem that an absolute chronology be fixed, but it is necessary to strive for a relative chronology that will give us a clearer understanding of the sequences of the prehistoric complexes with which we are concerned.

The evidence as to when man probably arrived in the New World is of so varied a nature that it will be well to consider it under the main heads of anthropology, geology, palaeontology, and archaeology in order to try to give as complete a picture of the problem as possible.

Beginning with the first heading, one important fact stands out clearly, and that is, that no human skeletal remains have been found in America, up to this time, which differ from the Indian as Neanderthal man differs from Cro-Magnon man in Europe. Are we, therefore, justified in the assumption that man is a comparatively recent comer to our shores? When we speak of "early man" in America, what do we mean? Does this necessarily denote a low-browed, thick-skulled individual, with heavy brow-ridges, prognathous jaw, and other Neanderthaloid characteristics? So far, according to physical anthropologists, there have been no skeletal remains with such a combination of primitive characteristics discovered in the western hemisphere, and therefore, while evidence has been offered from time to time to the contrary, there has been no general acceptance of these claims.

On the other hand there seems to be nothing incompatible with the idea that man may have lived in America for a comparatively long time without having undergone radical somatological changes. In other words no human skeletal material has been discovered that has led physical anthropologists to believe that man in the New World was other than a modern type. While the underlying homogeneity of the American aborigines appears not to be questioned, it is, at the same time, recognized that

they show a great diversity of somatological characters. Whether this diversity is due to isolation into groups, where inbreeding occurred, or to adjustments to environment, or to differentiation having taken place before the earliest immigrants arrived, are questions that apparently have been controversial ones for a long time among anthropologists. Along this line Hooton[6] says

> I subscribe also to the pragmatic doctrine of the persistence of indifferent physical traits in inheritance rather than to the mystic creed of environmental miracle-making. The American race is a composite race, but I think it is composed of heterogeneous strains welded together by mixture, not of wonderfully adapted types made out of common clay by a creative environment.

Hooton,[7] Dixon and others agree that the first immigrants to the New World were dolichocephals. To Hooton it appears that the earlier dolichocephals of the American population probably had

> a blend of Mediterranean, Negroid and an archaic white element, subsequently glossed over with Mongoloid traits due to mixture with other immigrants.

In any case we have evidence of dolichocephaly among the Basket Makers' whose remains stratigraphically are earlier than the Pueblos. There are also a number of cases where extreme dolichocephalic skulls have occurred under conditions indicating considerable age. The Lagoa Santa[8] skulls from Brazil represent such a case. Extreme dolichocephals have been found in west central Texas,[9] and along the Texas coast.[10] The incomplete skull from Vero is according to Dr Hrdlička a skull with a cephalic index near the upper limits of dolichocephaly. The Punin skull[11] from Ecuador is also dolichocephalic. The Minnesota skeleton[12] reported in the last few years and an even more recent discovery—that announced by Figgins[13]—are both narrow-headed. So that while the actual dating of these and other similar skeletal material remains doubtful, they do seem to bear out the impression that early man in America was narrow-headed, and that many of the skulls, although they appear to be of the same general type as those of the surviving Indians, show characteristics that are Australoid. Regard-

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[6] Hooton, Racial Types in America, p. 162.
[7] Hooton, Notes on Five Crania, p. 161.
[8] Hrdlička, Early Man in South America.
[9] Hooton, Notes on Five Crania.
[10] Woodbury and Woodbury, Prehistoric Skeletal Remains.
[11] Sullivan and Hellman, The Punin Calvarium.
[12] Jenks, Minnesota Pleistocene Homo.
[13] Figgins, New World Man.

ing this question Sir Arthur Keith[14] thinks the Punin skull shows unmistakable Australoid affinities.

However, it seems to be generally agreed that man came to this continent from Asia, and that earlier migrations, at least, came gradually in small waves or groups. To what extent they were already differentiated in appearance, custom, and language seems difficult to say. There is no question that whatever the differentiation, there was further somatological, cultural, and linguistic diversification here at later times. Every kind of environment was encountered in the New World and it is easy to see the important influence this would have in the human adjustments that necessarily would follow, making it difficult to distinguish the original culture traits which have thus become obscured. Some fourteen or fifteen geographical areas have been recognized in the New World and the cultures of these areas intensively studied, so that out of these studies one is able to form an idea of what were the underlying cultural traits of the earlier immigrants. Culture diffusion and culture sequences play an important part in formulating opinions regarding origin and time relationship of the various American tribes. There are those who subscribe to an independent development theory, to which a number of serious objections have been pointed out by Wissler.[15]

Without raising questions regarding theories of culture origins and their relations to migrations and chronology, all of which is ably treated in Wissler's "American Indian"[16] and other works, we can see what a study of this kind will lead us to, so far as it bears upon our problem. First of all, we find that, as with respect to somatic factors, and notwithstanding a great diversity, culture traits of the New World show signs of unity in both a material way and in various conceptions of myth, ritual, and so on. But these cultures of the New World appear to have been developed without direct contact with the higher cultures of the Old World. In other words the higher centers of culture in both continents were isolated, and in between, it appears, were great regions of nomadic hunters. As Wissler[17] points out:

> We have found the great centers in Mexico and Peru to be not really unique growths but to possess many of the fundamental traits common to the wilder folk in the marginal areas of both continents. New World culture is thus a kind of pyramid whose base is as broad as the two Americas and whose apex rests over Middle America.

[14] Keith, New Discoveries Relating to the Antiquity of Man.
[15] Wissler, The American Indian, p. 375 *et seq.*
[16] Wissler, *op. cit.*
[17] *Op. cit.*, p. 395.

Kroeber[18] gives a diagram, showing geographical distribution of some of the more important elements of culture, and the probable sequences in each area. He thus pictures the first migrants as a people living on wild products; for weapons he suggests the bow, harpoon, and atlatl, as well as clubs, darts, spears, and perhaps daggers of bone or stone. He further lists chipped and flaked stones and others that were beginning to be ground or rubbed into shape; bone awls for piercing, perhaps eyed needles for sewing; twisted cords; and twined or woven baskets and nets. It also seems likely that the dog was brought to America and not domesticated from any wild species here. This sort of evidence Kroeber[19] believes indicates that man's entry took place in the closing stages of the Palaeolithic or early in the Neolithic. He further points to the fact that these early migrations were unlikely to have been much later than the beginning of the Neolithic since cattle, pigs, sheep, wheat, barley, rice, millet, and the invention of the wheel would otherwise have been introduced into America. The origin of these traits is considered to be ancient, and therefore, as Wissler[20] says:

> make a strong case for the peopling of the New World either at a very remote period, or by wild tribes only, such as might arise by contact between the historic tribes of Alaska and Siberia.

Wissler[21] gives the following as some of the probable traits brought in with the original emigrants from the Old World: the fire-drill, stone chipping, twisting of string, the bow, throwing stick, the harpoon, simple basketry and nets, hunting complexes, cooking with stones in vessels of wood, bark, or skin, body painting and perhaps tattooing, and the domestication of the dog. Some of these he points out may have filtered through Alaska from time to time.

Considering that the languages of the New World lack evidence, outside of Eskimo, of any identification with Old World languages, the conclusion appears to be that human contact between the two continents was very remote.

When we bring our focus up to the Basket Makers of the Southwest we find them without pottery, making coiled baskets instead, using the spear-thrower, and with some of the other traits already mentioned, which probably extended back to earlier times. As to their origin, it was given a

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[18] Kroeber, Anthropology, p. 340.
[19] *Idem*, p. 344.
[20] Wissler, The American Indian, p. 392.
[21] *Idem*, p. 399.

tentative dating by Kidder[22] of from 3,500 to 4,000 years ago. Roberts[23] more recently suggests a time for their appearance in the Southwest nearer the present: 1,000 B.C. to 1,500 B.C. The inclination of late years has been to regard the development of both the Basket Makers and the early Pueblo stages as having taken place more rapidly than was formerly thought to be the case. At any rate, though the tendency is now not to stress too strongly actual dates prior to those which dendrochronology is establishing, there can be little doubt that the Basket Makers were already cultivating corn at the beginning of the Christian era. How long it took to develop the type of maize found in Basket Maker caves in Utah and Arizona is problematical, but several centuries must be allowed. A hunting stage Basket Maker preceding these early agriculturists is logically postulated, so that we may say conservatively that we lose sight of the beginnings of Basket Maker culture somewhere around 1500 B.C. Let us leave the anthropological discussion of our problem at this point and see what light geology and palaeontology can throw on it.

One difficulty in developing any sort of chronological relationship for a period antedating the Basket Makers is that there is a general lack of understanding of the use of such terms as "post-Glacial," "Recent," and so on. Unfortunately these words convey different meanings, according to the experience of the individual concerned with their usage, so that, for example, the beginning of post-Glacial time may mean as much as 25,000 years ago to one geologist and 10,000 to another. Whereas "Recent" may apply to a subdivision of post-Glacial time, by others it may be considered to be synonymous with it. A definitive solution of these difficulties will probably not be found till much more work of a coöperative nature is accomplished. However, for purposes of this paper we shall adopt here what we believe to be the best and most generally accepted interpretations, those given by Dr Ernst Antevs.[24] He makes the "Recent" a part of post-Glacial time, allowing 8,500 years as the time elapsed since the beginning of the post-Glacial, or that time, as he considers it, when the temperature became approximately as it is today, and allowing 4,000 years since the beginning of the Recent.

Obviously these questions are of great importance in relation to any migrations that may have taken place during these early times. We must assume, as we have done, that there is no longer much doubt that man came originally to America from Asia, at the same time realizing that there

[22] Kidder, An Introduction to . . . Southwestern Archaeology.

[23] Roberts, Early Pueblo Ruins in the Piedra District.

[24] Antevs, Late-Glacial Correlations and Ice Recession; Climaxes of the Last Glaciation.

are those who postulate a trans-Pacific migration in large war canoes; still others who account for man in the New World by calling upon the existence of a continent, now sunken; others who call attention to the comparatively easy access to North America by way of Iceland and Greenland. As to the first of these speculations, there is no denying the abilities of the Polynesians as navigators, but the evidence for more than a casual boat-load to have made a passage of such extreme length across the Pacific appears to be very unlikely. Furthermore, Polynesian diffusion seems to have been too recent to account for migrations in late Glacial or early post-Glacial times. As for the second, there is geological evidence that a sunken land mass once connected South America and Africa, but there is no evidence that this connection was not broken long before even the Java man came upon the scene.

We believe that some Bering Strait route furnishes the most readily acceptable theory of a route of migration. There is evidence from many different angles that man came to this country from Asia by this route. not the least of which is the geological evidence. The Yukon[25] seems not to have been glaciated during the last glacial period, an important thing to note in connection with the movement of peoples, since ice would act as a barrier to man and some of the animals he hunted. So far as northeastern North America is concerned conditions could not have been as favorable until later times, since the ice sheet lasted much longer than in the western part of the country, and would therefore have acted as a formidable barrier to migration. To return to the more likely route in the northwest, it should also be noted that recent investigations in northeastern Siberia[26] reveal a condition there similar to that in Alaska during the last glacial advance. The evidence points to the Anadyr River having been unglaciated, and to there having been no continuous ice sheet, only mountain glaciers in that part of Siberia. Thus the geological factors place no serious obstacles in man's path from the northwest to establish himself in a new continent at the close of the last glacial period. By the beginning of post-Glacial times he would have found it possible to have reached our Great Plains regions from a northwesterly direction through ever-widening corridors, the receding ice sheet on one side and mountain glaciers on the other. At a somewhat earlier time, during the maximum of the Wisconsin glaciation, the ice sheet in Canada would have discouraged migration, since we have no proof that these early people were adapted to an arctic environment as

[25] Johnston, Quaternary Geology in North America; Smith, Geographic and Geological Evidence.

[26] Obruchev and Salishchev, The Mountain Systems of Northeastern Asia.

were the later Eskimo. In regard to such a route Antevs[27] says in part:

> He [man] came from Northeastern Asia to Alaska and probably spread along the eastern foot of the Rocky Mountains where an ice-free corridor had formed some 20,000–15,000 years ago. He seems to have reached the Southwest at the age of transition between the pluvial and post-pluvial epochs, roughly 12,000 years ago.

He further notes:[28]

> As was pointed out by Johnston, the earliest possible, i.e. late-Glacial, land route from unglaciated Alaska to Central North America led eastward to the Mackenzie and thence southward along this river and the eastern foot of the Rockies. This explains why most of the significant finds of earliest man in the United States have been made on the Great Plains. The trail was probably opened 20,000–15,000 years ago. Possibly this route was also open for a short time between the first and second expansion of the Keewatin ice sheet 45,000, 40,000, or 35,000 years ago.

One of the chief factors in differentiating earlier sites from Basket Maker or later ones has been the association of extinct animal bones with artifacts unlike Basket Maker types. Discoveries of this kind have been made in too many well-authenticated cases in recent years not to be accepted as valid. This, however, has not, up to this time, helped us very much to date these occurrences with any degree of accuracy, since we do not know when the animals became extinct. Did they survive the last glaciation, and live on into post-Glacial times, or did they die out during the Pleistocene? It is not known whether the types of animals reported in associations with human remains and artifacts became extinct simultaneously in various regions of the New World, or whether some lingered on, in certain places, longer than in others: it seems reasonable to suppose that the latter was the case.

What caused the extinction of the larger forms: was it due to changed climatic conditions, food shortage, disease, dust, man, or one or more of a number of other causes that may have upset the natural equilibrium existing previously? Whether correct, or not, climatic change has been most generally thought to have played the chief rôle in this extinction, but until we are more familiar with the stratigraphical relationships of these extinct animals in geologically known deposits, it will be difficult to make use of their associated remains as chronological criteria. However, one thing that seems to be definite is that no extinct animal remains have been found associated with the remains of humans as late as the Basket Makers.

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[27] Antevs, The Spread of Aboriginal Man to North America, p. 302.

[28] *Idem*, p. 306.

Romer[29] makes the statement that the association in America of man with certain mammalian types no longer living is unquestioned, but that such contemporaneity does not indicate any remote antiquity. He finds almost no palaeontological evidence that man was here at a time earlier than the withdrawal of the last Pleistocene ice sheet.

We must now consider the archaeological factors that enter into the problem, but before doing this it will be well to look into what is meant by the use of the words "Folsom point," "Yuma point," and "Folsom-like point"—words that have come into use in describing early types of American stone points. There is general agreement among those informed as to what characteristics are combined in the typical Folsom point, but there has been no clear understanding regarding the Yuma and Folsom-like points. This may be due to the fact that it is hard to say what might be chosen as the type in each case because of the number of variants. For example, in the case of the latter, the writer has called them "Folsom-like points" for the reason that it seemed important to show that in some way they are related to the true Folsom point (though not necessarily in point of time). The longitudinally flaked grooving of the true Folsom blade is a specialized technique, which, as it will appear later, has a distribution limited so far to the United States and Canada. There are Folsom-like points from most of the United States, varying in size, shape and form, but with the specialized grooves. There is little evidence as to their age, and though in the west they have been found with extinct animals, in the rest of the country they represent surface finds. Therefore, it seemed to the writer that in our present state of knowledge regarding all these types it would be best to form three family groups, as mentioned, without trying to refine the classification till more is known of the relationships. Otherwise, in attempting to describe the various subtypes, it will be found that there are variant types indistinguishable from those found in recent campsites. For example, there have been found both at Clovis and the Lindenmeier site true leaf-shaped blades without any grooving that undoubtedly belong to the Folsom complex, but if we call these Folsom points, then the whole classification falls down. It would appear better not to anticipate too much, but to be satisfied with three main groups recognized in a tentative way. When there is more information and more evidence as to what are contemporaneous, or what the stratigraphic relationship is, it will be time enough to try to pigeon-hole all the variations. In the meantime a "Folsom complex" is beginning to be recognized, but it is important to understand that

[29] Romer, Pleistocene Vertebrates and . . . the Problems of Human Antiquity.

some of the types of artifacts composing this "complex," such as the snub-nosed scrapers and the small, leaf-shaped, flaked points without grooves, are hard to distinguish from similar types belonging to different horizons in other parts of America and other parts of the world.

We refer to the first group,[30] then, when the points have all the characteristics of the type found near Folsom, New Mexico. These are thin leaf-shaped points with a longitudinal grooving of each face (sometimes only one, depending upon the original thickness of the flake) and with very fine secondary chipping and a concave base, with ear-like projections. The Folsom-like[31] types also exhibit the grooving technique, made by the removal of a spall from a prepared base, but these types are usually larger and the flaking cruder. Usually the base differs somewhat in not being so deeply concave in relation to its length. There seem to be a number of variants of this type, both as to size and outline; one having the sides constricted above the base and then flaring to form a sort of fish-tail. The distribution of the true Folsom point seems to be more or less restricted to southeastern Wyoming, southwestern Nebraska, southwestern Kansas, western panhandle of Oklahoma and Texas, eastern half of Colorado, and eastern New Mexico. There are isolated finds from other places in these states and one or two adjacent states, but most of them are from the High Plains region. The distribution of the Folsom-like point, on the other hand, is very widespread, covering most of the United States and parts of Canada. As already stated, these represent, with few exceptions, surface finds. Whether they represent a later, degenerate type of point than the true Folsom or an earlier one has not yet been established satisfactorily, but the two types will undoubtedly be found to be related in some way to each other. The third type or Yuma point[32] has a distribution that seems to coincide with that of the true Folsom, the greater number having been found in Nebraska and in the vicinity of Yuma, Colorado. This type exhibits in its best examples the same control of the flaking tool as the Folsom, though the shape and cross-section are different. It occasionally has a narrow spall removed longitudinally along each face; the sides are parallel for some distance from the base, which is squared; the maximum width is either at the base or slightly above, where a shoulder exists. Often this shoulder is only a slight indentation, below which, to the base, the edges appear to have been purposely smoothed for hafting. There seem to

[30] Howard, Evidence of Early Man in North America.
[31] *Op. cit.*
[32] *Op. cit.*

be a number of variations, particularly as to length and to the fineness of the chipping. Some of the best types exhibit narrow, ribbon-like flutings that extend diagonally clear across the faces. In cross-section, instead of being bi-concave like the Folsom point, they are either elliptical, or where the flaking does not extend all across the face, the cross-section will be more diamond-shaped, because of medial ridges on the faces. These particular types have been described in detail by Renaud,[33] and more recently by Figgins.[34] There seems to be some disagreement as to just what constitute the distinguishing characteristics of the cruder forms, some of which are hard to differentiate from other types found in the same general region. It should be noted here that no Yuma types were found at the Folsom site, nor have any been reported from the Lindenmeier site by Roberts.[35] From the Clovis site[36] the writer has figured several specimens that were called Yuma points but at the same time it was suggested that, in his opinion, most of these were probably knives of the "Folsom complex" and not really Yuma points. This conclusion can be more confidently expressed at this time. However, one point found at Clovis[37] resembles a Yuma type, but has a narrow longitudinal groove from the base along the face.

It may be significant that so far the distribution of the true Folsom and Yuma artifacts occurs in the Great Plains province. In fact, with some exceptions, the distribution can be narrowed down to that part of the province in which are the headwaters of the larger river systems draining east into the Missouri and Mississippi Rivers and southeast to the Gulf, such as the White, the North Platte, the South Platte, the Arkansas, the Cimarron, the Canadian, the Red, and the Brazos. There is geological evidence that the latter, at least, headed much farther west towards the mountains at a not very remote period.[38]

The Folsom-like points on the other hand are not only found in the same region but have a very much wider distribution, extending all the way to the Atlantic seaboard and apparently centering in the Mississippi Valley —Ohio, Illinois, Indiana, Missouri, Kentucky. They seem, so far, to be exceptionally rare from the Pacific coast and are for the most part from the eastern side of the Rockies, with a limited number coming from the Basin and Range province, in Nevada, Idaho, and other places. Outside of

[33] Renaud, Yuma and Folsom Artifacts; The First Thousand Yuma-Folsom Artifacts.
[34] Figgins, Folsom and Yuma Artifacts.
[35] Roberts, A Folsom Complex, Preliminary Report.
[36] Howard, Evidence of Early Man in North America.
[37] *Idem*, Pl. 34, No. 4.
[38] Udden, Baker, and Böse, A Review of the Geology of Texas.

North America and Canada, none has been reported from the rest of the western hemisphere up to this time. There are apparently none in the collections in Mexico City and none have been found in Central America. No grooved points of the Folsom and Folsom-like types have been discovered in Europe or Africa, nor are there any in collections from Siberia so far examined. Points of slate with rubbed grooves occur in Alaska among recent peoples.[39] Similar types have been found in Manchuria[40] dated as of the pre-Han period, but these exhibit an altogether different technique in manufacture, though the purpose may have been similar. Therefore this looks like a North American development. If Wissler's[41] map of the Plains Indian culture area be contracted somewhat on the east, west, and north, it will coincide well with what is, at present, the distribution of the Folsom and Yuma points. Can it be inferred that, because the Folsom-like point has a wider distribution than the true Folsom, it is, therefore, relatively earlier? It is certainly not so well flaked as the Folsom, but there seem to be more variations in size and shape.

We may now consider some of the more recent discoveries relating to man's antiquity in America. We list these under the heads "cave finds" and those at "open sites." We are including here only those caves with indicated associations with man, and not the larger number of caves in which Pleistocene faunal assemblages alone have occurred. In the former category we may include: (1) Conkling Cave,[42] New Mexico; (2) Gypsum Cave,[43] Nevada; (3) Burnet Cave,[44] New Mexico.

In 1930 as the result of preliminary work on the part of Roscoe P. Conkling an expedition from the Los Angeles Museum excavated a cave in a spur of the Organ Mountains about fourteen and a half miles southeast of Las Cruces, New Mexico. The mouth of the cave is approximately fifteen to eighteen feet above the present valley floor and after excavating was completed the walls extended down almost vertically to a floor level with the valley floor outside. About twenty-four feet below this was a layer of cemented sand that sealed off the cave completely from above. Below this bones of camel, horse, ground-sloth, antelope, wolf, and California condor were found, as well as parts of human skeletons. Though there is no evidence

[39] Hrdlička, personal letter.

[40] Photographs sent to the author by A. S. Loukashkin, Museum of North Manchuria, Harbin.

[41] Wissler, The American Indian, p. 221.

[42] Conkling, The Discoveries in the Bone Cave.

[43] Harrington, Gypsum Cave, Nevada.

[44] Howard, Evidence of Early Man in North America.

of another entrance, it is probable that the fractured limestone slightly above the "sandstone seal" conceals a horizontal opening now below the valley floor.

The human skull found here appears to be narrow-headed, but otherwise not noteworthy. Human bones were apparently found at several levels, the lowest roughly fifty feet below the floor level at the time of discovery. Human bones as well as those of camel, horse, bear, and ground-sloth were found above the "sandstone seal" as well as below. Some of the sloth skeletons were found in articulated positions. It seems difficult to escape the conviction that these associations furnish evidence of man's contemporaniety with extinct animals. The dating of these discoveries, however, can be only a guess at the present time.

Gypsum cave, located about sixteen miles east of Las Vegas, Nevada, was excavated by M. R. Harrington of the Southwest Museum of Los Angles in 1930, though preliminary investigations had been made by him previously. The principal association here was evidence of man with remains of the ground-sloth, though other animals, including camel, horse, dire wolf, and the California condor, were also discovered. No human skeletal remains were found, but much evidence of human occupation, such as charcoal and ash, burnt sticks and cane, besides stone artifacts. No question has been raised as to these associations.

The third cave mentioned, Burnet Cave, is located about fifty miles west of Carlsbad, New Mexico, in the south fork of Rocky Arroyo. This cave furnished evidence of use as a burial chamber by a people probably related in some way to the Basket Makers, since the objects recovered showed striking similarities to those of the San Juan region, except for the sandal types and the fact that the burials represented cremations. No corn and no pottery were found. Below this burial level, which did not extend over three feet, lens-shaped deposits of charcoal and ashes were found at many different places and various levels throughout the cave as deep as eight feet six inches. Also below the burial levels and in some cases associated with the "hearths" were bones of animals, including camel, horse, antelope, bear, bison, caribou, and musk-ox-like animals. Of man-made objects recovered, a Folsom-like point was found at approximately four feet below the burial levels. This grooved point was directly associated with bones of one of the musk-ox-like animals, and with a hearth. No ground-sloth was found in this cave.

These three caves are the most recently investigated, but earlier ones are equally important. To mention one, the evidence brought forth by the ex-

cavation of Potter Creek Cave,[45] California, may well be reconsidered in the light of results of the caves briefly described.

Dr John C. Merriam very properly pointed out, shortly after the discovery of Potter Creek Cave, the difficulties in the way of pronouncing as man-made certain bone objects recovered there. Later, however, these bone objects were submitted to a number of anatomists who agreed that certain peculiarities were not natural. In a statement by Matthew and Gidley[46] the view was endorsed without question that the specimen submitted showed the handiwork of man. In view of the confirmation of such an association by evidence of a similar nature in recent years, is there any reason why this discovery should not be accepted along with the rest?

Now to turn to the second group of recent finds—those at open sites as distinguished from caves—we may mention first the site near Folsom,[47] New Mexico, which deserves to rank at the head of the list of recent discoveries, though it is already over ten years since residents of Raton, New Mexico, first brought their discovery to the attention of J. D. Figgins of the Colorado Museum of Natural History, Denver. This led to investigations during the next few years on the part of this museum and of Barnum Brown of the American Museum of Natural History, New York. Not far from the little town of Folsom some thirty skeletons of an extinct bison were found under eight to twelve feet of restratified deposits, associated with nineteen or so spear points of a specialized type that has come to be called the "Folsom point," as already described. This discovery has come to be generally accepted, and has been responsible for other discoveries of a similar nature in the general region.

Next may be mentioned the Clovis site[48] where not only Folsom spear points were found, but also knives, end and side scrapers, and small flakes, probably for use as gravers, though not of the "burin" type. These, found first in 1932 by A. W. Anderson of Clovis, are from basins that at one time may have represented part of the Brazos River system. The wind has exposed these old basin deposits by blowing the overlying sands into dunes along the edges. Weathering out of the top of these beds, and below the surface where cuts have exposed them, are found bones of extinct bison, hearths containing charcoal and burned animal bones, and in a number of places, in

[45] Merriam, Recent Cave Exploration in California; Sinclair, The Exploration of the Potter Creek Cave.

[46] Putnam, Evidence of the Work of Man.

[47] Cook, Glacial-Age Man in New Mexico.

[48] Howard, Evidence of Early Man in North America.

direct association, flake knives, points, and side scrapers. In the same deposits also, at levels above the hearth and bison bones, were found elephant remains. The site was carefully examined by a number of well-known scientists, among others Dr John C. Merriam[49] and Sir Arthur Smith Woodward before much of the evidence was removed from place.[50]

The deposits also contain invertebrates and diatoms, studies of which evidence climatic conditions for the time of deposition differing greatly from those existing at present. Dr Ernst Antevs, who made a study of the site, dates the deposition at from 13,000 to 12,000 years ago.

A third site, excavated last summer by Dr F. H. H. Roberts, Jr.,[51] is that near Ft. Collins, Colorado, known as the Lindenmeier site. Here again the bones of an extinct bison were discovered in association with artifacts. The stone artifacts included Folsom points and, in addition, knives, scrapers, and gravers. They were found along an arroyo down to fifteen feet below the surface. The work, carried on in most able fashion, produced conclusive evidence of these associations. No human bones were discovered either here, at Clovis, or at Folsom.

It is not possible here, nor does it seem to be essential, to give detailed accounts of all of the recent discoveries of a somewhat similar nature. Reports have been made of these or are in process of preparation, so that we shall do no more than mention them.

In Dallam County,[52] Texas, W. E. Baker has discovered Folsom and Folsom-like artifacts in basin deposits exposed by the wind, together with extinct animal bones.

In Yuma County,[53] Colorado, Perry Anderson has made a large collection of artifacts under more or less similar conditions. This site has given the name to the Yuma type point.

Near Scottsbluff, Nebraska, C. B. Schultz,[54] under the direction of E. H. Barbour of the Nebraska State Museum, has made some important finds of extinct bison remains associated with artifacts under deep loess deposits.

In Weld County, Colorado,[55] near Dent, J. D. Figgins has reported on the discovery of what appear to be Folsom-like artifacts in association with mammoth remains at five and a half to seven feet below the surface.

Floyd V. Studer[56] of Amarillo, Texas, has reported on the association of an arti-

[49] Woodward, Recent Progress in the Study of Early Man
[50] Merriam, Early Man in North America.
[51] Roberts, A Folsom Complex, Preliminary Report.
[52] Howard, Evidence of Early Man in North America.
[53] Renaud, Yuma and Folsom Artifacts.
[54] Barbour and Schultz, The Scottsbluff Bison Quarry.
[55] Figgins, A Further Contribution to the Antiquity of Man.
[56] Science News Letter, Uncover Evidence of Early Mammoth Hunters.

fact (ungrooved) with a mammoth found by J. A. Mead near Miami, Roberts County, Texas.

In the north A. E. Jenks,[57] of the University of Minnesota, has given preliminary accounts of discoveries of what also appear to be Folsom-like points found among skeletal remains in a gravel pit.

The work being carried on in the Pinto Basin by Mr and Mrs W. H. Campbell,[58] in connection with the Southwest Museum of Los Angeles, that at Scottsbluff, Nebraska, by W. D. Strong,[59] and that by E. B. Sayles[60] near Abilene, Texas, under the direction of Harold Gladwin of Globe, Arizona, is furnishing evidence of great importance regarding early man in America.

The discoveries at Vero, Florida, reported by E. H. Sellards,[61] and those at Melbourne, Florida, by J. W. Gidley,[62] though somewhat earlier than those mentioned, must not be overlooked. In the light of more recent work the evidence furnished at these two sites deserves reinvestigation, particularly since these discoveries furnished a most interesting fauna apparently similar to that from the west, where associations have been established with objects of human manufacture.

The latest report, as this is being written, is from E. B. Renaud[63] of the University of Denver, to the effect that crude stone tools resembling Chellean, Acheulian, and Mousterian tools of Europe have been found on what appear to be ancient river terraces. What this will do to throw light on early man in America cannot be determined; but anthropologists and archaeologists will await with interest the geological report upon the terraces.

Discoveries near Abilene made by Ray[64] and Sayles,[65] and tentative reports from MacClintock, Barbour, Schultz and Lugn[66] as to artifacts in Nebraska, under clays and loess indicating pre-Glacial deposits, are focusing attention upon the possibilities of man having been in America considerably longer than the time assigned to those who made the Folsom artifacts.

Thus we begin to see a pattern gradually taking form, as though we were endeavoring to fit together the pieces of a gigantic picture puzzle, one end of which rests in Siberia and the other in the Great Plains of North America. As we put the picture together as far is it now goes, and considering that some of the pieces have probably been lost, let us see what we can make of what is left.

[57] Science News Letter, Bones and Dart Points.
[58] Campbell and Campbell, The Pinto Basin Site.
[59] Strong, Signal Butte, A Prehistoric Narrative.
[60] Sayles, An Archaeological Survey of Texas.
[61] Sellards, Human Remains and Associated Fossils.
[62] Gidley, Investigations of Evidence of Early Man.
[63] Science News Letter, When Did Early Man First Reach America's Shores?
[64] Ray, Archaeological Research in Central West Texas.
[65] Sayles, An Archaeological Survey of Texas.
[66] Paper read at the St. Louis meeting of the American Association for the Advancement of Science, 1936.

First we see that there is depicted a basic hunting people, and while we cannot tell exactly what these early people looked like, as there is a gap here, it will probably turn out that they were narrow-headed, with Australoid and other non-Indian characteristics but still recognizable as American Indians.

Second, we see further a group in our Great Plains, particularly along the east side of the Rockies near the head-waters, or what once were the head-waters, of some of the larger rivers, who left there beautifully flaked implements that have come to be called Folsom points. The flaking of these and the so-called Yuma points is unequaled anywhere, except, perhaps, in the Danish and Egyptian Neolithic daggers. They have also been compared to the European Solutrean[67] laurel-leaf points, but it is doubtful whether the comparison is valid since the American points exhibit a finer chipping, as though made by a people who had been familiar with the technique for a long time, but by comparison were in a later stage of development.

Third, the people whose skeletal remains have not yet been found, or at least not yet recognized as belonging to the makers of these artifacts, evidently hunted animals that have been extinct in that region for some time.

Fourth, we cannot see, in our picture, when these animals died out, but it looks as though it were some time after the last glacial advance. Some interpret this, in years, at from 10,000 to 15,000 years ago. Geological evidence points to no obstacle at this period in the way of these early hunters migrating from Siberia into our Great Plains region.

Fifth, we see further that we must not narrow down too much the margin of time for the development of our native cultures or else it will be difficult to account for such diversity of language, culture, and somatological characters as existed.

Sixth, we can make out that our "Folsom man" lived at an earlier time than the Basket Makers of Utah and Arizona, and that the Basket Makers lived before the Pueblos, so that we have this much of a sequence. It seems likely that some of the more recent finds, such as those at Gypsum Cave, will fit into the gap between the first two mentioned, but our picture is somewhat blurred as to this gap. It is decidedly blurred with regard to those people who may have existed prior to our so-called "Folsom Man," who is recognized, so far, only by the tools he made. These he left scattered about old river banks and lake beds of our Great Plains when in search of animals who came there to seek water.

In brief,[68] therefore, we may conclude, taking all the evidence from

[67] Martin, Études sur le Solutréen.

[68] For about the best summary of the problem, see Nelson, The Antiquity of Man in America.

anthropology, geology, palaeontology, and archaeology, that man lived in America at least as long ago as the closing stages of the last Glacial epoch or the beginnings of post-Glacial times, which conservatively may be taken as an antiquity of ten thousand years. That he may have lived here earlier cannot be denied, but the evidence is not yet ample enough to prove the case, so we rest it here.

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UNIVERSITY MUSEUM
PHILADELPHIA, PA.

A SURVEY OF THE WOOLEN TEXTILES IN THE SIR AUREL STEIN COLLECTIONS

By LILA M. O'NEALE

SIR MARK AUREL STEIN spent the years 1900–01, 1906–08, and 1913–15 in Chinese Turkestan. On the first expedition he investigated the Khotan region over an area which stretches in a direct line for more than three hundred miles from west to east. He published a detailed report, "Ancient Khotan" (Oxford, 1907), in two quarto volumes in addition to a personal narrative, "Sandburied Ruins of Khotan" (London, 1903).

Stein's second expedition explored from the uppermost Oxus to the western boundary of China with the Tarim basin as the main field of operations. "Serindia" (Oxford,1921), the detailed report of this undertaking which covered two and a half years and ten thousand marching miles, fills three quarto volumes of text, almost 1600 pages, one volume of plates, and one of plans and maps. Prior to the publication of "Serindia," Stein finished his second personal narrative, "Ruins of Desert Cathay" (London, 1912).

The third time Stein set out from Kashgar, he crossed six hundred miles of country including the whole length of the Taklamakan desert to reach the district around the extreme easternmost depression of the Tarim basin. Results of his explorations of ruined sites and ancient trade routes in the Lop area are embodied in four quarto volumes, "Innermost Asia" (Oxford, 1928), two of text, one each of plates and maps. The preliminary account of these explorations appeared in the paper, "A Third Journey of Exploration in Central Asia," 1913–1915.[1]

The Stein Collections of Central Asian antiquities include a wide variety of specimens, thousands of ancient documents, textiles, household furniture, and implements of unknown use. The finds comprise examples of arts and crafts from the first century B.C. to the eleventh century A.D. A very brief paper on the silk relics recovered from a Lou-lan site in the Lop desert has appeared.[2] It is natural that these earliest surviving examples of a great industry should excite the most enthusiasm and first interest, since the materials other than silk were generally put to homely uses, and were less frequently patterned. Under any circumstances analyses of the Stein Collection objects will be difficult. The Indian Government arranged for the division of the finds between the Imperial Museum of Delhi and the British Museum. It is all the more fortunate, in view of this fact, that Stein should have interested Mr Fred. H. Andrews in compiling the detailed Descriptive List

[1] Geographical Journal, Vol. 48, 1916, p. 121 *et seq.*

[2] Fred. H. Andrews, Ancient Chinese Figured Silks Excavated by Sir Aurel Stein at Ruined Sites of Central Asia (Burlington Magazine, July–September, 1920, London).

of antiquities which regularly follows each record of an excavated site. Although English textile terminology differs in minor matters from our own, there is little doubt that his analyses provide a sufficiently safe basis for a general survey of Central Asian textiles. I propose in this paper to summarize what may be known of the early wools of Chinese Turkestan from the fabrics in the Stein Collections.[3] In so doing I shall organize the available material upon a chronological basis.

Wool is now and must always have been of utmost importance to the ever-shifting peoples of Central Asia. Felted material is both a necessity and a medium through which the aesthetics of its makers are expressed. At Khotan there are great stores of felt rugs, or numdahs. The making of numdahs is an ancient industry as evidence from third and seventh century sites proved. Khotan and Kashgar have long been famous for their products according to the Annals of the Former Han dynasty. Chinese supremacy in the form of political control was effective in Central Asia during the Han dynasty (206 B.C.–220 A.D.), and later was reasserted during the T'ang dynasty (618–907 A.D.). Khotan, situated in an important position on the ancient trade route from China to the Oxus basin, was destined to receive influences from both East and West. Kashgar, referred to as a "market for goods," was on the Chinese route to the West through Sogdiana and Bactria.

The "Travels" of Fa-hsien is the earliest extant record of a journey to India. The Buddhist pilgrim, who visited the Khotan region about 400 A.D., mentioned the materials of dress at Kashgar in speaking of the different kinds of fine woolen cloth (some translators render the word as "felt") and serge. "Apart from these," he wrote, "the dress of the common people is of coarse materials, as in our country of Ch'in." Stein's excavations brought to light actual fabrics which antedate by centuries those mentioned in the traveler's few sentences. Yet even these finds cannot be said to represent the early developments of wool as a textile fibre in Asia, since the silk fragments found in the same sites with the wools are achievements demanding highly specialized knowledge and experience in pattern weaving. Whether remnants of ancient materials more nearly comparable to archaic types will be found cannot be prophesied. Stein evidently doubts the possibility when he says,

> . . . it is true, we can scarcely hope ever to obtain a sufficiently close knowledge of the development of ancient weaving industries in Central Asia and China to derive chronological indications from the manifold fragments in silk, wool, and felt which the Descriptive List below shows.[4]

[3] A special index in the reports lists every mention of each specimen found.

[4] Serindia, Vol. 1, p. 221.

ANCIENT BURIALS

At most of the sites excavation brought to light inscribed and dated tablets, but at other sites Stein estimated the relative chronological position of his finds. Outside the enclosing wall of a small fort built of clay slabs on the Mesa L.F. near Lou-lan he discovered an undisturbed cemetery containing three graves. The finds even lacking exact dates are of considerable interest because this small and seemingly unimportant site produced the first well-preserved body unearthed during Stein's several journeys into Central Asia. Secondly, nothing about the appearance of the bodies, of a racial type "distinctly non-Mongolian," the manner of shrouding them for burial, nor the actual materials used suggests that Chinese influence, as typified by the fortified post, had made any real impression upon the people living there. Stein says the appearance of the men's bodies corresponds to the descriptions of the people of Lou-lan to be found in the Han Annals. They were undoubtedly the "common people" of the region at the beginning of our era, of whom centuries later Fa-hsien wrote. One coffin contained the body of a man, bare except for a kind of loin cloth made up of dark brown tassels of wool. The shroud was of coarse but strongly woven woolen material. The head was covered with a brown felt cap with angular ear-flaps. The whole body, except for face and feet, was enveloped in coarse canvas, apparently of hemp.

The graves found at Site L.S. in the Singer district are believed to represent burials coeval with those at Mesa Site L.F. Coarse cloths of wool and goat's hair together with felts were recovered. One wool is dyed terra cotta (L.S. 1.01); and a coarse dark brown goat's hair fabric, plain weave, is "ornamented with occasional inwoven threads of red and yellow" (L.S. 2.06). Grave L.S. 3 contained the body of a woman.

A plain close-fitting felt cap tied under the chin with strings. The face cloth was made of strong plain-weave woolen fabric, yellowish, with a twisted fringe and narrow ornamental line of brown wool inwoven along the top of the fringe. For a width of 1¼" within fringed border, double shoots of weft. Selvage along one side. Well made. The body was shrouded in hemp (?).

DATED FABRICS

An account of datable woolen fabrics in Central Asia might begin in either the west or east portions of Turkestan. An abundance of textile remains was recovered from the rubbish heaps found at the long chain of ruined watch stations along the ancient Chinese frontier wall in the exceptionally arid desert of Tun-huang, in the east. The wall, or *Limes*, was constructed during the closing decade of the second century B.C. to protect

caravans against the raids of the Huns, and to safeguard the greatest of the ancient trade routes from China. Small detachments were sent out to man the towers. Documents and records of all sorts in the form of wooden slips were recovered from the *Limes* ruins and rubbish heaps. The earliest of these records, the oldest extant Chinese manuscripts known, have clearly written dates corresponding to 98, 96, and 94 B.C.. Since no documents dated later than the middle of the second century A.D. have been found, the whole line of wall and watch towers must have been abandoned to the desert soon after that date.

Silk scraps predominate among the numerous fragments found in the deserted soldiers' quarters and within the rubbish heaps usually present at the base of each tower. The general Chinese style and treatment of the silks is to be expected of examples from the Han dynasty industrial centres. Materials are described by Andrews as being "finely woven." Fabrics other than silks are less often represented although the Administration of the *Limes* issued tunics, vests, and shoes to the men.

The woolen textiles, few by comparison with the silk and linen finds, are, too, less noticeable because rarely patterned. Andrews' descriptions of them are brief. He characterises the various qualities of woolen fabrics as "fine canvas" or "coarse canvas," presumably meaning plain weave materials of more or less standard texture. He lists one fragment as "fine," four as "coarse." Almost all the plain woolen fabrics found at the towers are natural buff or yellowish. One piece is dark brown, and the very simple patterning of another has been described as "a stringlike woof on double warp; buff, with occasional lines of dark brown" (T. XXII. c. 002). One fragment (T. XLI. b. 018) is woven in twill.

Two fragments of woven wool rugs were discovered. One (T. XLIII. a. 06) is dyed green, the other, a tapestry (T. XXIII. b. 03), is in "rainbow stripes" in red, green, and brown, a conventional arrangement occurring frequently among the textiles of Lou-lan. The single example of pile weave carpet from the watch towers was constructed of goat's hair warp, natural color wool weft, and pile wefts of red and yellow wool. A curious technical feature of the ancient Central Asian carpets is the formation of a pile surface on both sides of the piece. An interesting variant of pile tufting is used in an object which Stein suggests may be the tongue of a saddle or harness strap (T.VI. c. ii. 002). It is made of three to five strips of leather superimposed and sewn together. One side is ornamented with rows of upstanding tufts in crimson, dark blue, and yellow wool, the wool being couched down with buff thread on the top strip of leather, and the tuft ends cut off short. This superstructural decoration comes nearer to being embroidery than any other of the earliest finds from the *Limes*.

Goat's hair fabrics, although Andrews often questions their composition, are almost always "coarse and loosely woven" of dark brown, buff (natural), and yellowish materials. Goat's hair was plaited for rope and horse hair was plaited for strainers. The many entries mentioning "woolen string" may mean yarn prepared for weaving.

Felt occurs in combination with other materials, cotton, hemp, silk, or woven wools, in slippers and shoes. Because almost all of the specimens of footgear have several materials and techniques in their makeup, they present an unusually complicated technological problem. Felt ordinarily forms an inner sole or an interlining between fabrics used for the uppers. For example, one slipper type has a leather sole and uppers of felt covered with corded woolen cloth, red, purple, or blue-green; a more elegant *Limes* specimen (T. XXIII. b. 09) is made with felt foundation covered on one side with layers of silk, a pale blue one between two of white; the three layers quilted together with parallel rows of stitchery.

Truly, the above wools from the oldest of the extant fabrics of Central Asia do not form a very impressive list taken by themselves, but there is every reason to believe that the wools were local products.

Stein announces in his introduction to the monumental "Serindia" that he left on his second expedition into Turkestan with the

> same hope of recovering from ruins long ago abandoned to the desert sands more relics of that ancient Civilization which the joint influences of Buddhist India, China, and the Hellenized Near East had fostered in the scattered oases of those remote Central Asian passage lands.

And again he followed the old trade route to Lop-nor, a group of homesteads and townlets near the marshes of the lower Tarim river.

The Lop desert has been a region to dread from ancient times, but the usual conception of a desert is strangely at variance with the arid region surrounding the old Lou-lan sites. Deep trenches and sharply cut ridge formations of hard clay create an "unutterably desolate" landscape which Stein compares to a "sea . . . frozen hard and buckled." And yet, from such an unlikely area have come the quantities of relics of the ancient silk trade between China and the "Western Regions." Undoubtedly, the silks were importations. Like the watch stations along the ancient *Limes*, the Lop-nor tract lies on the route which marks the first expansion of Chinese political influence westward into Central Asia.

From many literary references and from evidences found at various sites, Stein concludes that the old route, opened during the last years of the second century B.C., and always difficult because of the surrounding waterless wastes, was superseded by a new northern route and finally

abandoned by the beginning of the fourth century A.D. The fortified station at Lou-lan became inactive at approximately 270 A.D. The justly famous figured silks of the Collections came from a small cemetery on top of a mesa rising thirty-five feet above the surrounding ground. These silks must be treated as a unit in contrast to the other Lou-lan textiles.

Stein assumes from the rooms and the documents found in them that the dwellings at Lou-lan were those of resident officials of Chinese administrative headquarters. In most cases the last occupants had stripped the place bare, leaving only discarded objects and fragments. The majority of the textiles recovered are plain weave cloths, presumably of coarse or medium quality. Andrews has commented upon some "fine" textures, but in no instance has indicated the degree of fineness by yarn counts. The most interesting feature of these plain weaves is the color range employed. Buff, brown, and red are mentioned an almost equal number of times by Andrews; yellow and blue woolens are occasionally found, and green is noted in a single fragment. This rather limited use of colors must have been motivated, for, as the Mesa cemetery finds prove, many other dyes and combinations were known. Oddly enough, because they are considered by us as fundamental color variations of plain weaving, stripes, checks, plaids, and changeable or two-tone effects are conspicuously lacking. Only two of the thirty woolens described, L.A. V. xi. 02, a coarse woolen canvas in broad buff and brown stripes, and L.A. VI. ii. 0042, a two-tone effect gained by crossing buff warps with red weft, come under this classification.

Felts form the most numerous class after the plain weaves. About half of the specimens are dyed yellow. The remainder are brown, buff, scarlet, and white. The presence of felt fragments in quantity is to be expected since, according to the fort records, a "felt dress" was part of the individual soldier's kit. Two specimen numbers (L.B. IV. v. 0032 and 0033) consist of small fragments of thin yellow felt painted with tempora. The patterns are apparently geometric and floral. The designs of one are dark gray, buff, and pale blue; those in the second piece, which has a conventional floral design of lotus flowers and spots, are red, buff, brown, gray, blue, and white. Andrews believes that the pieces were imitations of embroidery. Whether they are or are not imitations, these painted felts are unique in the Collection.

Yarn and cords of goat's hair are found among the Lou-lan textiles. There is a single example of a hair fabric, described as "coarse," and made after the manner of tapestry, with thick warps and close-pressed weft elements. The other examples are plaited handles and bands, coarse brown matting woven of goat's hair string, and a four-strand rope for hobbling a

horse. The List includes the usual fabrications into which goat's hair entered in early times although often a larger proportion of woven cloths is present than appears here. Horsehair, on the other hand, seems almost always to be found in fabrics for specialized uses. Whenever listed, the material is described as gauze or sieve cloth, open in texture, reinforced at the edge with felt, and made by "wrapped-twined weave" corresponding to the plain twining technique of basketry. Stein comments upon the "carefully woven horsehair gauze" peculiar to the Lou-lan region.

Although found in much greater profusion at the Lou-lan Mesa cemetery, there are several characteristic examples of pile carpet from the big rubbish heap L.A. VI. ii. A pile-knot fabric is admittedly of ancient origin, but Oriental rug authorities have usually stated that there are no extant examples antedating the fifteenth century, that none is to be hoped for, and that our knowledge of early carpets must come from paintings. Yet here at this modest Chinese station situated in the heart of the dread Lop desert were found fragments of pile-knot weave. Andrews gives a detailed analysis of a coarse but well-preserved specimen (L.A. VI. ii. 0046).

> The length of pile is sometimes more than the $\frac{1}{4}''$. There are about 4 rows to the inch (vertical), and about 8 knots to the inch (transverse) equalling 32 to 1 inch square. On back, at intervals of 5 picks of weft are rows of long woollen tufts. The object of these may have been to prevent the carpet slipping on a smooth floor. The technique closely resembles that of the modern cheap Japanese rug. The colors used (in the Lou-lan specimen) are black, dull white, red, pink, buff, yellow, bright blue. A fine green occurs, but may be caused by damp and heat affecting the blue accidentally. The ground color is red and pink with indistinguishable pattern in lines, sometimes straight, sometimes meandering, of the other colors. In none of the Lou-lan fragments is the pattern wholly distinguishable, but all the colors are still bright. By contrast with the limited color range present in the plain-weave wools, the pile fabrics show designs in claret, red, pink, bright blue, dark brown (natural), light brown, buff, yellow, green, black, white.

Andrews makes several references to the "darri," the true indigenous cotton carpet of India. It is usually stripped in two colors, often blue and white, although geometrical and floral designs appear in the more ambitious examples. Technically speaking, the weft face makes the cotton darri similar to wool tapestry. The darries in the Stein Collection apparently are similar in all respects to the familiar Indian weavings. Lou-lan sites furnish three rather elaborately patterned fragments. L.A. IV. v. 002 is a woolen darri; L.A. IV. v. 004 is woven in "satin twill," but termed a darri. It has bands of color in regular order: deep red, dark green, yellow-green, bright yellow, saffron, violet on pale blue warp. L.B. IV. ii. 0013, according to

Andrews, resembles the ordinary Indian darri. Its warp is tightly twisted hemp string; the weave is "satin." Perhaps a satin effect is meant since the method of weaving the darri is in no way related to the usual satin technique. Andrews says, "the colors do not run right across the fabric, but are inwoven with each other at their junctions where they are cut off." He describes the addition of tufts at the back in rows about fifteen picks apart by a pile weave technique. The pattern in red and blue is the "stepped battlement" motive.

As was the case at the early *Limes* sites, Lou-lan sites furnished a number of most interesting slippers involving complicated construction features. Several descriptions state that the fabric uppers are woven to shape in one piece, a feat of no small skill. In addition, the tapestry-like fabric, which Andrews often refers to as a "silk weave," probably because of its ribbed effect, is elaborately patterned.

By comparison with any textiles found elsewhere at Lou-lan, the celebrated fragments rescued from reburials at the Mesa cemetery are of greater interest. At Lou-lan, and later at Turfan, Stein found evidences of an old custom of bandaging the dead in strips and rags of discarded or partly worn clothing. Due to this fortunate circumstance, the Mesa cemetery finds offer the opportunity to study a tantalizing array of fabrics in actual use during Han times. Among the 129 specimens from the Mesa, 74 are silk, and by way of indicating their historical importance, 45 of these are figured silks. Their undoubted Chinese origin does not in any measure preclude seeing resemblances to Sassanian, Coptic, and Byzantine silks of two to three centuries later. Technically they are products of weaving methods far removed from those of so-called "primitive" looms. The whole problem of warp manipulation as evident in figured stuffs is immeasurably expanded by these finds from Central Asia.

Wools, hemp fabrics, and felts are much less exciting. The Lou-lan wools are mostly plain weaves or canvas-like materials. But even an assumption that the fabrics were of local manufacture admits considerable knowledge of weaving techniques. In addition to fine and coarse plain weaves, Andrews lists a half dozen examples of reps and cord effects, the results of combining warp and weft yarns of appreciably unbalanced sizes. Several twills also appear in the List. Finds from the *Limes* watch towers include one example, but the Lou-lan sites, if I interpret the analyses correctly, yielded five twills. Two others (L.B. IV. ii. 0013 and 0016), a darri carpet and the upper of a slipper, are called "satin" weaves, but the illustrations seem to show what is, strictly speaking, tapestry technique, a plain weave variant. It is quite possible to err in judging from a reproduc-

tion, but the fact remains that the satin and the darri ordinarily have nothing in common. The five fabrics above mentioned are assumed to be twills. One, a "satin" according to the Descriptive List, has an allover pattern of lozenge motives, each lozenge centered by a small floral element (L.A. IV. 004). Floral motives are not usual twill designs, but the term twill may somewhat broadly be extended to classify any technique in which the weft or warp yarns float over more than one yarn in forming a pattern. Andrews calls L.C. 037 a "fine twill," L.C. 038 a "serge weave," L.C. V. 02*b* and 026 woolen damasks, adding that they are "monochrome, woven in the manner of L.C. i. O11." The last specimen is a "cotton damask . . . ground woven in small rib; pattern in large broken twill giving the effect of chequer. Lozenges, chevrons, rondels the pattern motives."

Although it is permissible to classify satins and damasks and figure weaves under the general heading of serges or twills, such usage extends terms which are more often applied to diagonal wale effects than to freely patterned fabrics. Literally, the term twill describes weaves in which the right or left progression of the successive picks of weft over the warps is regular and clearly defined. Regular progression, imperative in building up a pattern by means of twilling, may be varied in a number of ways, but each of the variations normally results in motives of insistent angularity such as chevrons or lozenges. Fabrics which we term damasks, satins, and figure weaves depend for their effect not so much upon regular and systematic progression as upon the manipulation of yarns to produce design elements of different shapes. Sometimes this involves standard twilling, but the amount is governed entirely by the size and shape of the motive.

The place of origin of the twill is unknown, but its use in wool fabrics, and the lack of a single early silk example in twill technique leads Stein to the belief that the weave is not of Chinese origin and may have been locally developed.

Another technique unrepresented among the 129 Lou-lan silks is tapestry. Whatever may be the reason, the woolen tapestry pieces provide the surprise element: their designs are unmistakably Hellenic in character. Stein suggests that the technique as well as the motives might have been acquired from the West. Tapestry weaving is an old art in Asia Minor and Greece, a fact proved by fifth century B.C. finds at Greek colonial sites in Crimea. The designs of the Central Asian wool tapestries from Lou-lan present the strongest possible contrast to the essentially Chinese motives characteristic of the silk fabrics. Among the ten tapestry fragments in the List there is nothing distinctively Chinese in style, and much that is reminiscent of Greek and Coptic designs. The most unexpected, and at the same

time the most typical among them is in specimen L.C. iii. 010*a* which shows a portion of a human head of Western type rendered realistically even to the flesh tones. Other Central Asian tapestries of approximately the third century A.D. contain palmette motives similar to sixth century Western examples in combination with cloud scrolls and horse-legged birds of the Han art tradition. Andrews states of some examples that the weave is "of Coptic tapestries," equivalent to saying of the slot or Kelim type.

The Lou-lan Descriptive Lists contain about a dozen fragments of different pile-weave fabrics similar in construction to the example already noted (L.A. VI. ii. 0046). The patterns are indistinguishable in their entirety, but elements such as shaded or "rainbow" bands, latch hooks, zigzags, lozenges, dots, and stylized flowers may be traced. There are from two to eight colors in each.

Andrews makes a number of references to a material rare (?) among primitive weavings. He calls it "box cloth," implying its similarity to the modern thick fabric which is fulled until it is virtually waterproof. The cemetery at Lou-lan yielded four examples, all two-tone, in crimson and buff yarns. They are described as "fine cord textures, velvety to the touch and apparently teased up in parts to a surface somewhat like box cloth." If teasing was done in Turkestan as long ago as the beginning of our era, was it also done elsewhere? Logically, the technique would be developed in an area where wool was used since teasing is a process essentially dependent upon a thick loosely-spun yarn. Finishes subsequent to actual weaving of fabrics are comparatively rare among primitive materials with the exception of the application of color by means of dyeing or printing.

The cemetery site at Lou-lan furnished a very old fragment of an embroidered comb case (L.C. 003) in chain-stitch work, a technique typical of the Chinese, which has come down to us through the centuries. To judge from the illustrations, the standard for extreme precision of execution distinguishing the Oriental embroideries of modern times was set by the first centuries of our era. The design is "the latch hook pattern, much scrolled . . . within which are scrolls of naturalistic grape vine with fruit and leaves. Chain stitch in dark blue (?), green, yellow."

Felt fragments, abundant here as at other sites, are often padding layers or linings for silks and other wools. Yellow is the favored color, although brown and natural buff are fairly frequent. A fragment of buff felt with an appliquéd four-petalled flower of thin blue felt is an interesting specimen of superstructural decoration.

The definite contrast between the textiles of the fort and dwellings and those excavated at the Mesa cemetery is to be expected, since the first are

relics from soldiers' quarters and homestead rubbish heaps, and the second finds represent grave wrappings. Although strips and rags of partly-worn garments were put to that ceremonial use, the initial quality of the fabrics was undeniably finer.

About midway between the Lou-lan sites and the present day Korla is Ying P'an site dating from Former Han times. The usual assortment of miscellaneous woolen fragments came from the refuse heap at the base of the stupa, but in addition to the plain weaves and the familiar modifications, rep, cord effects, tapestry, and darri, and the twills, some of the wool fabrics were in warp-rib weave. The importance attaching to these finds lies in the fact that all the Chinese figured silks from the Lou-lan and also from the Ying P'an sites are in this weave. We may have in the use of the warp-rib an example of the transference of the typical method of weaving silks to the more commonplace wools. Some centuries later, the twill, a technique for wools, was taken over by the silk weavers.

Stein visited the Niya site during each of his three expeditions. To the east of the Niya river he found a group of residences marking an ancient agricultural settlement mentioned by Hsuang-Tsang, the Buddhist pilgrim of the seventh century. At that time there was a town which "the king of Khotan makes the guard of his eastern frontier." The small oasis was even than in danger of being conquered by the desert. Stein reasons that the site must have been abandoned prior to the fourth century A.D. The dozen or so dwellings had been stripped of all objects of value, but a close resemblance was recognized between the carved and painted patterns on remnants of furniture and frescoes and the familiar motives found in Gandhara reliefs. Dominance of Indian art forms can also be traced in the fragments of an ancient rug (N. VII. 3) discovered in the open fireplace in the centre of a great hall. The material, the technique, the design of transverse stripes and simple geometric units of svastika and stupa-like motives, and the buff, gray-blue, yellow-green, yellow-red colors are all Indian. The illustration of this rug from a period at the beginning of the Christian era might just as well be a reproduction of a typical cotton darri of modern India.

The plain-weave woolen fabrics found at Niya, to judge from the plates, show considerable variation in texture, but the terms "coarse" and "canvas-like" are the usual descriptive words used. Colors are brick red, dark pink, crimson, "dark gray and dirty white," yellow, and buff. Two wools illustrate variations through color choice: N. XLV. i. 010, a stripe, and N. XLV. iii. 004, a check.

Several carpet fragments are listed. Two are specifically stated to be of wool woven after the manner of the cotton darri. N. X. I. has a fret pattern

in narrow bands at intervals dividing the larger bands from each other. These narrow bands are blue and yellow, the two colors counterchanging within successive repeats. The warp is of undyed wool varying from dark brown to dirty white. N. XIII. ii. 001*b* is a fragment of firm thick wool (?) darri, in stripes of buff and dark brown "interspersed with thin lines of red."

The one example of pile weaving from the Niya site is similar in construction to the Lou-lan carpet L.A. VI. ii. 0046 described above, but without the reverse-side tufts. The relative qualities of the two may be judged by the number of knots per square inch: Niya example, 50 knots; Lou-lan example, 32 knots.

In one of the "dust bins," as Stein calls them, was found an unusual specimen. Andrews believes it is a button from which a metal centre and shank are lost (N. XIV. iii. 0033). It is a disc of leather with square central hole (like a Chinese coin) on one side of which wool strips are sewn, three of red, three of blue, and three of yellow, each group radiating from the centre. Fragments of light red plaited woolen braid one and three-eighths inches wide (N. XIV. iii. 006*e*) also came from the same rubbish heap. The Niya specimens include several examples of goat's hair fabrications: "rope," "brown and white string," and "a flat string band. Plaited of 5 strands, 2 dark brown, 3 yellow" (N. XIV. iii. 007*d*). The only hair fabric mentioned, apparently a monochrome tapestry type, is "very coarse." It is woven of dark brown and buff yarns (N. III. x. 012).

Felt fragments were found in numbers, but the felts at Niya present some interesting aspects. There were the ordinary light buff and brown rags suggesting use as shoe materials, and the ubiquitous yellow scraps. The plates show variations in quality: N. XV. 014 is a compactly felted, rather thick stuff, while N. XV. 015 is loosely felted. N. XII. 0018 is a sieve for clearing milk. It is a "network of coarse vegetable fibre, yellow and brown, set within a circular frame, c. 10″ in diameter, made of withies bound with string, and covered with yellow felt sewn." A "conical headgear like a Phrygian cap made from carefully gored yellow felt" came to light in clearing the great hall N. XIV. Although in fragmentary condition the five segmental strips about four inches wide composing the upper part are well preserved, and also enough of the lower five-inch portion to reconstruct both size and shape of the cap. The height is about fourteen inches, the lower diameter about eight.

Two felt fragments, examples of surface decoration, came from a rubbish heap. N. XIV. iii. 006*c* is a fragment of "natural" buff felt on which is appliquéd a scroll wave pattern in thin crimson felt. N. XIV. iii. 007

is composed of "two strips of felt, light buff and dark blue. The blue is held to the buff with stitchery in red thread." Andrews says, "On blue side stitches are scattered; on buff, irregular cross work." The piece may be a bit of an edge decoration.

But of the various textile finds at Niya, none is more interesting than a definite reference to felt rugs in the early documents. One of the wedge-shaped tablets found in such profusion in the rooms and refuse heaps recorded a transaction involving household goods, sheep, vessels, wool weaving (?) appliances, implements, and "Namadis." Stein comments, "We may well recognize here the earliest mention of the Numdahs so familiar to Anglo-Indian use." Fortunately, the tablet was associated with a Chinese document bearing a date corresponding to 269 A.D.

Among Andrews' descriptions of the finds from Kara Dong, near Niya, appears the following for Ka. 1. 0014: "One fragment fine twill woollen fabric printed with repeating pattern of dot rosettes alternating with plain round spots; ground light red, pattern buff." Is the piece printed, or is it tie-dyed? Buff and "buff, natural" are the names given by Andrews to the natural color of wool. If the ground of this textile was really printed light red leaving the pattern the presumably natural buff, we have an example of negative patterning. But "dot rosettes" and "plain round spots" are the most typical design motives resulting from the tie-dye process. The only specimen in that technique in the Descriptive Lists of the Turkestan finds is one from Endere, an eighth century site. E. i. 029 is a "blue cotton, 'knot-dyed' fabric."

LATER FINDS

The finds so far mentioned are earlier by from three to seven centuries than those from Turfan sites dated relatively or definitely within a period from the seventh to the tenth centuries A.D. Yet, for a number of reasons, the Astana site in particular is notable from the textile aspect. The period between the latter half of the sixth century and the first half of the eighth was a period of Chinese influence heightened by the renewal of political control and increased facilities for trade between the East and Central Asia. Turfan lay on the northern route to the West, and had special advantages by reason of its position as a place of convergence of the main and smaller routes.

The Astana burial customs were not unlike the much simpler ones found at L.F. site near Lou-lan. Beneath the body shroud Stein found wrappings of rags and strips torn from old, apparently valueless garments. Tomb chamber after tomb chamber was cleared without finding a trace of woolen cloth. Practically all of the hundred fabrics were figured and plain silks

and cottons. The Descriptive List contains only two mentions of woolen pieces, both canvas-like, and both used in combination with other shoe cloths. But if actual wool finds are almost totally lacking, the regular and abundant supply of silks from Chinese centres explains the fact. That wool had it place in everyday life even if it furnished none of the customary burial garments is shown through another of the usages in that region. Among the objects placed in a tomb chamber were varying types and sizes of clay images such as camels and horses with men or women riders. Each of the horse images recovered shows a carefully rendered numdah saddle blanket. The painted "embroidery," characteristic of the horse trappings in use during the sixth to the eighth centuries, is also the typical ornamentation of the felt rugs sent out from Turkestan today. One saddle blanket (Ast. III. 2. 058) is described by Andrews thus: " . . . Numdah has red ground and is gaily decorated with elaborate palmette and flower pattern representing embroidery, in orange, red, emerald green, pink, dull blue, picked out with black and white."

Dandan Uiliq, a monastic (?) site yielded only one find which bears any relation to wool fabrics. According to the Detailed List, not a scrap of wool cloth came to light during the excavation of fourteen shrines and houses. The unexplained absence of wool finds seems most peculiar in a region famous for its weaving. Document dates, between 782 and 787 A.D. are assumed for a painted wooden panel (D. VII. 5), important to any historical treatment of felt. The panel has been described by both Andrews and Stein.

> It shows two figures, both mounted and manifestly of high rank, one above the other. The upper figure is seen riding on a high-stepping horse. . . . The horse . . . carries a deep and narrow saddle over a large Numdah or felt-cloth, and shows elaborate trappings. . . . We could not have wished for a more accurate picture of that horse 'millinery' which in the eighth century evidently flourished throughout Turkestan as much as it does nowadays.[6]

At Khadalik, a minor site dating from the eighth century, were found small fragments of silk paintings, and a part of a "small pennon of a coarse woolen (?) fabric. With it was a piece of similar cloth still bearing traces of a painted design." This is the first painted wool mentioned, and more detail would be appreciated. Another Khadalik piece is described as a "brown woolen fabric, 'braid texture,' rather fine."

The felt fragments, red, yellow, and natural buff, appear both as portions of garments, and as padding materials. Kha. IX. 0030 is a "circular

[6] Sand-buried Ruins of Khotan, pp. 318–19.

mat (diam. $3\frac{1}{4}''$) of coarse linen material, two thicknesses with felt between, the whole carefully bound round with a narrow strip of red linen fabric. All edges turned in and neatly finished."

From the refuse heaps in a string of hamlets in the valley of Kara-tash River east and south of Khotan, Stein found ragged woolen fabrics with an unusual color range: buff, sulphur, sienna, brown-red, and crimson. At Sampula in the Khotan district, also an eighth century site, he found pieces of coarse red woolen serge (a twill), and fragments of wool tapestry border (Kelim). Andrews calls the bold pattern a "rather badly balanced modified anthemion with base in symmetrical scrolls." The colors are red, yellow, buff, purple, blue, and brown. An ancient rubbish heap at Mazar Toghrak in the same general region contained a wool rug fragment (MT. 81). It is patterned in red, blue, and green bands on which are white circular spots, a blue serpentine scroll, and simple geometric forms. Andrews does not mention the technique.

It is assumed that Andrews means a woven fabric, not a felt when he lists a fabric as "wool." In that case, finds from Endere, near Niya, illustrate a fairly wide range of colors: pink, crimson, dull carmine, blue, dark blue, yellow, brown. The felts were buff (natural) and yellow in the proportion of three natural colored felts to one dyed piece. A T'ang period fort with surrounding ramparts was cleared at Endere. More important than the fort was the discovery that it had been built over the site of an old rubbish heap, thus preserving its contents. A miscellaneous group of cloths from the refuse are listed under the number E. Fort 0012, and represent specimens of "plain cloth, plain corded, plain twill, and fancy twill forming lozenge pattern." Such an enumeration, although the first two weaves are technically the same, testifies to considerable knowledge of the loom. There are also a "woollen braid" and "two plaits of hair string" (E. Fort 0014 and 0016).

The Miran ruins are south of Abdal, the small hamlet from which Stein made his start for the Lop desert sites. He has determined that Miran, like Niya, Endere, and Lou-lan, must have been deserted at approximately the end of the third century A.D. Later the Tibetans built the fort and its rabbit-warren quarters on the site. The small rooms and hovels proved a mine of relics. Rooms nine feet in height were filled to the roof with rubbish, and evidence was not lacking that they were in use during the accumulation of the refuse.

"The relics of the Miran fort," says Stein, "show a distinct falling off from the standards of technical skill exhibited by the remains at the Niya and Lou-lan sites." Most of the wool textiles in the List are "coarse."

Andrews states that "the variety of texture is considerable in these fabrics. . . . But all are woven strongly and skillfully, and colors are well preserved. . . . It is significant that not a rag had found its way into the rubbish until it had become hopeless for use."

The plain-weave wools are in the majority. Besides being "strong" and "coarse," Andrews writes that they are a "loose and somewhat irregular texture," and that they are the "texture of English hopsack tweed," a basket weave. Buff (natural) and a brick red appear in an almost equal number of fragments; salmon and crimson each occurs once.

The fragments referred to as darries are both "fine" and "coarse." The patterns represent three rather distinct types. Two fragments are banded with stripes in a variety of colors, and in widths ranging from one eighth inch to two and a quarter. M.I. 0084 is banded in terra cotta, dull myrtle, green, buff, and brown; M.I. XXVII. 009, a finely woven coin bag, has fourth-inch stripes of red, green, buff, and indigo in regular order. The second type of pattern is an adaptation of the key motive. In the three fragments showing the key motive the colors include red, dark green, buff, yellow, blue, and red-purple. The third type illustrates a pattern decidedly different from any other darri pattern so far encountered among the examples from other sites: animal motives. The following is an excerpt from Andrews' description: M.I. XXV. 001. ". . . The border attached to one edge is 1″ wide and woven in blue and yellow, the pattern consisting of conventional running animals, such as may be seen in ancient Cretan, Greek, and Persian art."

Fragments in twill weave are found in greater proportion among the Miran finds than among those from any other site. The types are the regular two-and-two and herringbone.

The Miran felts are like those from other sites in quality and color, but they illustrate several unusual uses to which the fabric was put in the eighth century. M.I. 0080 is a felt pad four by three inches, buff color, of double thicknesses of fabric stitched together. The pad is filled with powdered charcoal, suggesting that it may have been a "pounce bag (?) used for transferring designs to fabrics before painting or embroidery." There are two round felt cords. One, M.I. 0086, is "salmon colored, made by felting together a number of loosely spun strands of yarn." The other M.I. XX. 006, is finer, "made of two or three buff strands laid side by side and joined by a coating of red felt." These are the only recorded examples of cords composed of felted material. M.I. ii. 0038 is a

part of a gourd vessel which has been broken and mended with felt. A strip of thick buff felt 8½″ long sewn to gourd. . . . Along sides of original break holes have been

made at regular intervals of 1½" and the strip of felt carefully and closely sewn with goat's hair strings. These holes were then plugged with short wooden pegs to prevent leakage.

A very simple sling of goat's hair came to light in the refuse at Miran. It consisted of an elliptical felt pouch for holding the stone, and a seven-strand plaited cord which divides into two parts to form the edge of the felt, then reunites (M.I. 0081).

The ruined fort of Mazar Tagh lies on the shortest route between Khotan and the oasis on the northern rim of the Tarim basin. Here as at Miran Stein found manifold signs of Tibetan occupation. A unique specimen among the felts is the small ring about three inches in diameter which may have been used on the head when carrying weights (M. Tagh. a. 001). The woolen fabrics were found fastened by stitchery to felts, a combination implying use as shoe materials. Buff and dark brown predominate; carmine and dark blue are mentioned once. A checked blue and white woolen material is noted because of the rarity of color combinations among plain weaves (M. Tagh. Fort. 02*d*). A fine canvas (M. Tagh. 0654), which Andrews calls wool, shows remains of paint on each side. If it is a painted banner, it is the single representative of a wool fabric put to that purpose.

The most spectacular finds made by Stein came from the cave temples of the "Thousand Buddhas" southeast of Tun-huang, to be dated by their Chinese inscriptions between the years 864 and 983 A.D. The outstanding fact about the textile finds from these caves is that for the investigator of wool fabrics in Central Asia, the Descriptive Lists are total blanks: among 230 woven specimens, there is not one mention of wool.

CONCLUSIONS

The sketchy survey of Sir Aurel Stein's published reports made in this paper does no more than indicate obvious possibilities for the textile analyst. Recovered Turkestan wools of the period between the first century B.C. and the ninth century A.D. permit one to make generalizations with confidence concerning the types of wool fibres used, the weaves, patterns, and color range. Qualities of cloth as indicated by warp-weft counts per inch are not known to date. The omission of such details is unfortunate. How fine is "fine," and does it mean the same for silks and wools?

Three fibres, sheep's wool, goat's hair, and horse hair, were staples. The first is found in by far the greatest number of fabrics of all qualities. It is spun into yarns, doubled for cords, and worked under moisture and pressure for felts.

About weaves we can know a good deal. No question of origins is in-

volved. The earliest sites excavated yielded weaves which are a long way from the starting point of simple interlacing. Of the eight standard types known to the modern textile industry, Turkestan artisans in the third century A.D. knew four: plain and its variations, twill, figure (similar to our Jacquard), and pile-knot. The twill occurs among the early wools, but it is not found among the Chinese silks until later. To solve the problem of its origin requires more source material concerning Western weaving. Brocade types, usually considered simple, gauzes, double cloths, and true satins are lacking although Andrews often refers to a "satin twill," and the warp-rib weave of the early Chinese silks occurs in the wools at Ying P'an.

The pile weave appears to be the most outstanding technical achievement of these early Turkestan weavers. The specimens illustrate the fully developed technique with basic weft and independent pile weft, which although "knotted" differently from those in the familiar Oriental types, is nevertheless the result of a twist given a short length of yarn.

The single-element fabrications are conspicuously lacking. There are no examples of knitting, and but few of plaiting. The failure to record the number of strands in the listed braids makes inventorying impossible. Five-strand and seven-strand specimens are mentioned, and the phrase "braid texture" is used several times. Any textile analyst will appreciate the welcome refuge offered by the phrase.

Superstructural decorations, embroidery and appliqué, are infrequently found. Single examples occur, but apparently needlework was mainly utilitarian. The very beautiful comb case from the Lou-lan Mesa cemetery is the outstanding piece of chain-stitch embroidery.

Andrews' patient descriptions of the aesthetic aspects of the Central Asian fabrics are marvels of accuracy, to judge from the identity of the notes and the photographic reproductions of specimens. The textile patterns in wools range from stripes to complex geometric designs of the darri and pile rugs, and the realistic motives in the tapestries. Any list of elements must include bands, crosses, svastikas, latch hooks, scrolls, leaf and flower forms. It is only in the descriptions of running animals, human heads, composite creatures, and cloud motives that we realize how truly the regions of Stein's explorations were "passage lands." In arbitrarily limiting considerations in this paper to the wool textiles, only a comparatively faint reflection of the influences at work forces recognition.

Color range in the early Central Asian textiles offers several surprises. One is the limited color repertory of the felted materials. With few exceptions they are natural buff, brown, and yellow; the fragments from some sites being predominantly one or the other color. The woven wools, by con-

trast, are often brown or buff, rarely yellow. The reason does not appear. As for the other colors in the gamut, reds are numerically in the lead. Andrews calls them dark red, pink, crimson, scarlet, claret, carmine, brick, and terra cotta. Blues come next in number: dark, pale, bright, and indigo. Greens and white occur about half as many times as blue; black and gray about equally; purple least often. Apparently Tyrian purple did not travel eastward. This color order is only relative; no exact count was made. A natural inquiry concerns the dyes used. Neither Stein nor Andrews offer any information on the subject, which fact indicates that nothing suggestive of materials or processes was found by either of them.

The wool fabrics made during a period of ten centuries in Central Asia show little change. The plain-weave wools and the goat's hair cloth are "coarse," whatever the century; there are no new weaves, and there is no appreciable amplification of the color range. Perhaps there were localities where greater skill was in evidence, or where far Western and Eastern influences were more pervading, circumstances which would have been reflected in the weavings. In the areas Stein visited wool fabrics seem to have been relegated to commonplace uses. With Chinese silks coming regularly, there was no particular incentive to develop the possibilities of a sturdy, reliable, homely material. Even the rubbish from the soldiers' quarters at the watch towers (third century) contained figured silks. Wool was essential and fundamental to the lives of its wearers, but, except in the tapestries and pile weaves, it did not inspire the development of techniques or devices which would make of it a beautiful fabric.

UNIVERSITY OF CALIFORNIA
BERKELEY, CALIFORNIA

ASSOCIATIONS AND THE STATE IN THE PLAINS[1]

By E. ADAMSON HOEBEL

PROFESSOR LOWIE has focused attention on the rôle of military societies among the Plains tribes as effective territorial unifiers. The policing of the buffalo hunt was emphasized as the specific cohesive function which acted to counterbalance the centrifugal forces residing in inter-club rivalry and frictions. The importance of such police activity is notable because it so sharply contravened general Plains notions of individual freedom of action and lack of centralized authority. Still, in harmony with the general culture patterns of the area, the police functions are said to have been limited to the vital and short period of the hunt.[2]

Two paragraphs sum up Lowie's exposition.

> With amazing uniformity as to detail the police functions just described have been recorded for a dozen and more tribes and for a period of two hundred years. The personnel of the constabulary varies with the tribe; the duties may be linked with a particular society (Mandan, Hidatsa), or be assumed by various military societies in turn (Crow), or fall to the lot of distinguished men without reference to associational affiliations (Kansas). But everywhere the basic idea is that during the hunt a group is vested with the power forcibly to prevent premature attacks on the herd and to punish offenders by corporal punishment, by confiscation of the game illegally secured, by destruction of their property generally, and in extreme cases by killing them.[3]
>
> In other words, for the brief period of the hunt the unchallenged supremacy of the police unified the entire population and created a state "towering immeasurably above single individuals," *but which disappeared again as rapidly as it had come into being*[4] (italics mine).

Here is a point which calls for careful study by the student of political and legal origins. Here *is* a potent germ of the state. One wants to know what lines would have been taken had this germinal instrument been given opportunity for expansion and development. Into what phases of civil life would the police authority tend to penetrate? But is it not possible that police authority *had* gotten beyond the bounds of the buffalo hunt?

We need to know more about this than is allowed us in the literature.[5]

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[1] Association is here defined as a social group specifically organized for the pursuit of some common interest or interests in so far as such interests are not primarily based on either the blood or the territorial tie. Cf. R. H. Lowie, The Origin of the State (New York, 1927), p. 74.

[2] *Ibid.*, pp. 94–107.

[3] *Ibid.*, p. 103.

[4] *Ibid.*, p. 104.

[5] Shreds appear at several points in Societies of the Plains Indians (Anthropological Papers, American Museum of Natural History, Vol. 11, 1916).

Consequently, when I went to the Northern Cheyenne in the summer of 1935 to see what more could be discovered pertaining to matters of law and control, I was on the watch for civil activities of the military clubs.[6] Some of the results are presented herewith.

Authority to assume the police functions was given to a society by the tribal council, except in the case of the Sun Dance, when the society of the dance pledger was in charge. The responsible club retained its position so long as the tribe was drifting in a certain direction, to relinquish its control when the direction of movement was changed or the bands separated.

It is in the situations which arose when a hunter was suspected of having brought in buffalo taken by stealth, when the "no hunting" rule was in force, that we first began to note the extension of powers of the Cheyenne soldiers. The set-up is, to be sure, still a part of the hunt complex, but it is an important step to allow a searching party to enter a man's lodge to look for evidence. This is a social policy of a much more deliberate nature than that of whipping a man on the immediate field of his crime at the instant of detection, as it has hitherto been always reported.

Consider the case of Man-lying-on-his-back-with-his-legs-flexed and that of Low Forehead. The Shield Soldiers were having a dance. They had given the order that no one was to go out to hunt buffalo.[7] Man-lying-on-his-back-with-his-legs-flexed let it be known he was going out to hunt small game for his family needs. There was no objection. But when he unintentionally got into a herd of bison, he simply could not restrain himself. He shot a fat cow. He was observed.[8] When the Shields had stopped dancing, their chiefs were informed. When the soldiers appeared, Man-lying-on-his back-with-his-legs-flexed did not rush out to protest his innocence as he saw them coming, so they took the next step. They ripped a gash down the back of his tipi. In spite of this warning, he sat inside saying nothing. Then they knew he was guilty, and destroyed his lodge about him.

[6] It would be ungrateful not to bear witness that Karl N. Llewellyn of the Columbia University School of Law had a large hand in awakening me to this point. Acknowledgment should also be made to the American Council of Learned Societies for the grant which made this study possible.

[7] This seems to have had nothing to do with the necessity of preserving the food supply, but impresses me as a form of ceremonial idleness imposed by a group which had the power given it to a different end. If so, it indicates in another way how the Cheyenne associations were curbing the individual's personal rights to liberty of action.

[8] It was stated that though sentries were not posted against enemies, there were always soldiers lurking about the fringe of the camp when the "no-hunting" rule was invoked. They observed who left the camp. If the absent ones were not back by early evening, they began to tell each other that he must have killed a buffalo. A special watch was kept for the return. Also, women and non-soldiers might observe infringement and report.

Not so Low Forehead. He was informed on one night. When the soldiers approached, he rushed from the lodge holding high his hands, calling upon them to stop. He denied the charge and invited a search. Last Bull and Wrapped, two chiefs, entered and hunted about. They emerged and said it was all right. At that the soldiers withdrew.[9]

The pattern was clearly established. If innocent, one rushed out holding up his hands in protest. A search followed. If guilty, one made no move, and the penalty followed. Overharsh action on the part of the soldiers, however, was not well taken. The case of Last Bull in his treatment of Grasshopper shows this.

The Fox Soldiers had issued the "no-hunting" decree. Grasshopper ignored it, and was informed on. Blood was on his horse before his tipi. Last Bull as chief of the Foxes rode up and shot the horse without further inquiry. This fanned Grasshopper's mother to such a state of indignation that she cut several gashes in the chief's tipi. At this Last Bull called out the Foxes.

"Friends," he said, "We're going over there and ruin everything those people have."

On learning this intent, the father of Grasshopper loaded his gun and took vigil. It was his purpose to shoot the first man to touch a thing. The Foxes drew bead on him, telling Last Bull to destroy the lodge while they covered the old man. Then one soldier spoke up with soothing counsel, saying that the incident was not worth all that trouble. (They would have killed the whole family—a half war, according to my informant.) The advice was accepted and the crisis averted. The old man announced he was going to move off to one side to camp and hunt by himself. They let him do it.

People said Last Bull did just right, that he had a right to "wipe out the whole family to enforce the law." That it was for the commonweal he acted was recognized by the informant, Calf Woman. When asked if she would have informed if she had seen Grasshopper coming in, the answer was, "Yes. The soldiers were not working for themselves, they were working for the people."

When questioned, "If he had been a relative?" the answer was, "I'd lie low. Some one else would tell anyhow." The conflict between kin and community ties resolved!

In another field of civil action, too, the soldiers had penetrated deep as the police arm of the community. Murder was both a crime and a tort to the Cheyenne. Crime first and tort second. Tribal welfare rested in the

[9] These cases were given by Stump Horn, aged 84, who was a Shield Soldier at the time.

holiness of the Medicine Arrows and the Medicine Hat. The death of a Cheyenne at the hands of a Cheyenne "bloodied" the arrows. So long as the blood remained there could be no successful war parties, and game shunned the country of the Cheyenne. "It made the tribe lonesome." The ritual of renewing the arrows effected the purification.

A stigma attached to the murderer forever. He became rotten inside so that his very breath was putrid. His body gave off a bad smell. This, even though the arrows had been renewed, was enough to drive off the game. Hence, a sentence of banishment was imposed by the tribal council and enforced by the soldiers. Actually, no enforcement seems to have been necessary. The doom was recognized. The exile went usually to the Dakota or Arapaho where his evil odor did not apparently bother the herds. The many cases in which blood vengeance was visited during the exile, or before it could be imposed, show that the community law had not completely downed the private law.

Calf Woman brought out a crucial case which tests the position of the soldier police in the murder situation. An aborted fœtus was found in the vicinity of the Cheyenne camp. The discovery was made known to the chiefs. The presumption was entertained that the fœtus was that of a Cheyenne. Yet nothing was known about it. The soldier chiefs were consulted; by them a plan of investigation was produced. The two head chiefs of a society convened their group and the society announcer was sent out to broadcast the order of the soldiers for all women to assemble in public. When it was ascertained that all were at hand, the women were ordered to expose their breasts for inspection. Each was then scrutinized by the soldier chiefs to note lactation enlargements of the breasts as a sign of recent pregnancy. One girl showed symptoms and was charged with the crime, judged guilty, and banished from the tribe until after the arrows had been renewed. Calf Woman claims to have been present, but to have escaped the inquisition because she was too young to have been pregnant. This would place the event in the 1860's.

Three salient points are to be noted here. First, that the unborn child had tribal status and insofar a legal personality. Abortion, too, was murder which tainted the tribal medicine. Second, this was a situation wholly criminal, for the violence had been done within the most intimate family unit possible. Blood feud was precluded. Third, the murder was a secret crime demanding detection of the criminal. The technique was ingeniously invented to meet the situation.

Clearly, the military associations were well along towards establishment as a civil power.

One last instance will suffice to complete the demonstration of police penetration of civil life by the soldier groups. The people were moving camp through a deep snow in dead winter. Bird Face, a Dog soldier, came upon his niece, Elk Woman, struggling nearly exhausted through the drifts. He sang a Dog soldier song, "In any fight I protect the people." To this he added, "This is a cold day; I'll do the same thing." Whereupon he had Elk Woman mount his horse behind him.

Riding on, they overtook Sleeping Rabbit, husband of Elk Woman.

"There is one thing I don't like," Bird Face upbraided him, "That is leaving a woman in the deep snow. I don't kn w what would become of my nieces if I were dead. How would they get through the deep snow?"

He made no threats, according to Calf Woman, but Sleeping Rabbit's rejoinder was to draw his bow and drive an arrow into the hero's left elbow. Bird Face pulled the shaft loose, but the head stuck fast in the wound. Red Eagle, son-in-law to Bird Face, came up and took Bird Face home. Then he set after Sleeping Rabbit with his gun. When he could not find the culprit, he turned back.

Meantime, Bird Face was having difficulties. Attempts to extract the arrowhead failed. The lower arm gradually blackened until amputation was thought necessary. The situation was serious, for, as Grinnell categorically states, the Cheyenne never practiced amputation, that no man was willing to lose a limb, nor would any doctor undertake the responsibility.[10] In the face of this Red Eagle called the Fox Soldiers together to see what they would do about it. (Note that this was not Bird Face's own society: it is not a case of a society avenging a harm to one of its own. It is community responsibility at work.) The decision was that they would apprehend Sleeping Rabbit and "beat him until he was as sore as Bird Face's arm." (A poetical nicety, it seems.)

Though Sleeping Rabbit was informed by a friend, the Foxes caught him. They punched him; they kicked him; they beat him with sticks. They threw snowballs in his face; they pushed him in the snow. But they did not kill him. During the mêlée a Fox called out that any who failed to beat him would have to give a Contrary Dance. Everyone spared the expense with a vim.

This accomplished, the arrowhead was nevertheless still in Bird Face's arm. So the Foxes told Sleeping Rabbit *he* had to remove it. Compulsion gave him strength where others failed. He managed it. The arm was now so bad that they ordered him next to amputate it. And he was condemned to sit up with the patient every night until he was well.

[10] G. B. Grinnell, The Cheyenne Indians (2 vols., New Haven, 1923), Vol. 2, p. 147.

Public feeling ran high against Sleeping Rabbit. The fact that he was a tribal chief at the time probably heightened it, for a chief of that order was custom-bound to generous and noble behavior. The fact that Bird Face was beyond the philandering age made the violence wholly unjustifiable in the public view. Other soldier bands, according to Calf Woman, were agitating for driving Sleeping Rabbit from the camp. Contrition saved him. He had five good horses which he presented to the Fox Soldiers with a statement of repentance. These worthies took them to a trader in a deal for a barrel of whiskey. They set up a feast and invited all the military associations to a drinking bout. They had a good time. "And no harm was done."

The whiskey is said to have pacified the warriors, and the matter was considered settled. Sleeping Rabbit served his chieftainship until the expiration of his term, attending the council meetings. He lost his wife, however, for Bird Face declared her divorced from him. Though Calf Woman was in the camp through all of this, she cannot remember that Sleeping Rabbit gave gifts to Bird Face. It appears that there was no composition. The penance did not enure to Bird Face's benefit. The "fine" was paid to the government. And with it its functionaries were socially rewarded for their arduous labors.

Thus it is that for the Cheyenne, at least, the military societies had become an ever-ready arm of a state "towering immeasurably above single individuals," not only on the occasion of the buffalo hunt, but in internal civil affairs as well.[11]

NEW YORK UNIVERSITY
NEW YORK CITY

[11] I would not maintain that parallel features will be found in all Plains societies. From my own field studies I have found that the Comanche, for instance, who had established a system of associations (see R. H. Lowie, Dances and Societies of the Plains Shoshone [Anthropological Papers, American Museum of Natural History, Vol. 11, pp. 803–35, 1915], pp. 812–13), had no buffalo police whatever. The Idaho Shoshone, on the other hand, had no military societies, yet I find that they organized an association of police to function when they went into the plains to hunt. But I do suspect that a good deal more of what I have reported here for the Cheyenne would be discovered among the more developed Plains tribes, if there were more searching in this particular field by interested students.

THE CAVE OF PUY-DE-LACAN: A MAGDALENIAN SITE IN SOUTH-CENTRAL FRANCE

By LILIA AND HOMER H. KIDDER

ON the slope of a wooded ridge overlooking the valley of the Corrèze near Brive, the Cave of Puy-de-Lacan opens to the south in a ledge of Triassic sandstone nearly 100 feet above the river at a distance of 273 yards from the right bank. A natural pillar divides the entrance into two arches. The interior, supplied with water that seeps through the coarse rock, measures thirty-two feet in width by forty-two in depth, including a low cavity at the inner extremity. From a rock-terrace in front, a sandy talus drops at an average angle of 15° to the foot of the hill.

This is the only site in the region of Brive that is known to have been occupied by folk of Magdalenian culture. The case is surprising for a locality counting many Solutrean and Aurignacian sites, the more so as some forty miles down stream beyond the point where the Corrèze flows into the Vézère, the neighborhood of Les Eyzies was, in Magdalenian times, as throughout the Upper Palaeolithic, the most frequented center of human life known in the prehistoric world. It may well be that with the advance of ice to within fifty miles northeast of the location of Brive in the recrudescence of intense cold that prevailed during the Bühl glaciation, most of the inhabitants, following perhaps a movement of game to the southwest and west, abandoned the Corrèze for the lower valleys of Périgord, where, in fact, as along the Dordogne, the Isle, and the Charente, Magdalenian sites are considerably more numerous than those of preceding epochs.[1] Whatever the cause of its isolation, Lacan was on the fore-front of man's range in the direction of the ice-covered highlands of central France. No Palaeolithic site has been found farther up the valley or in Upper Corrèze stretching northeastward across the bleak Plateau des Mille Vaches towards the Monts d'Auvergne.

The site was discovered and named some seventy years ago by two pioneer prehistorians of the Corrèze, Elie Massénat and Philibert Lalande, who, digging through a meter of sand on the talus, found a bed of Magdalenian culture. Lalande published an interesting account of their work.[2] About the year 1900, when a sand pit was opened at the foot of the slope, the shovel men collected on their screens some 700 flaked flints which they turned over to Abbés L. Bardon and A. and J. Bouyssonie, then beginning

[1] The last statement is based on an unpublished list indicating the location of prehistoric sites in Périgord by M D. Peyrony, which the author kindly permitted us to consult.

[2] Philibert Lalande, Iconographie des Grottes à Silex Taillés des Environs de Brive (Moniteur de l'Archéologue, 2e série, Vol. 1, pp. 268–72, Montauban, 1866–67).

a notable series of studies of the Stone Age in Corrèze.[3] Nearly thirty years later, without knowledge of former discoveries at Lacan, we ourselves dug the deposit lying just in front of the cave. Today a new exploitation of the sand pit, which is stripping the talus to the rock, has exposed further archaeological deposits, these being closely observed by two competent prehistorians, Abbés L. Lejeune and J. Bouyssonie, aided by M J.-F. Pérol. They have reported a Solutrean bed at the foot of the hill and above it an important Magdalenian deposit which runs up the talus towards the levels dug by us.[4] When the relation of these deposits to ours has been established, MM Lejeune and Bouyssonie propose that we collaborate with them and with M Pérol in an article on the site as a whole. The rest of the

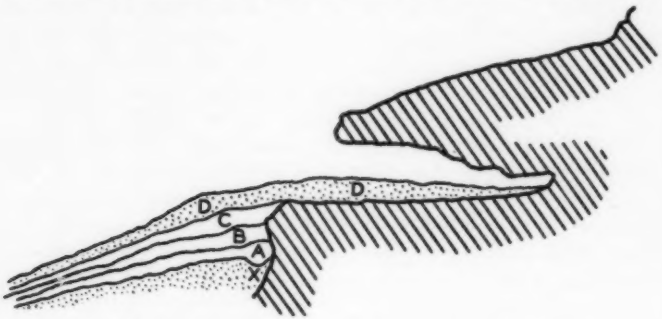


FIG. 1. Cross section of the Cave of Puy-de-Lacan (Corrèze), showing the site at the head of the talus.

present communication is therefore concerned only with our own work at Lacan. For the same reason, Figure 1 shows, in cross section, only the archaeological beds dug by us at the top of the talus.

We first visited the cave, then concealed by woods, in the course of a walk in June, 1929. Poking with a stick in the sand in the interior, one of us unearthed a couple of flaked flints, a small saw-toothed blade, and a borer (fig. 3, nos. 1 and 2). This find led to the reopening of the site.

[3] Two papers by these authors that contain passages on Lacan are (1) "De la Succession des Niveaux Archéologiques dans les Stations Préhistoriques des Environs de Brive" (Compte Rendu du Congrès Préhistorique de France, Perigueux, 1905); (2) "Sur les Stations Préhistoriques des Environs de Brive" (Compte Rendu du Congrès Préhistorique de France, Angoulème, 1912).

[4] Abbés J. Bouyssonie and L. Lejeune, with J. F. Perol, of Brive-la-Gaillarde, La Station de Lacan et son Outillage (Compte Rendu de la XIe Session du Congrès Préhistorique de France, Périgueux, 1934, pp. 318–23). Also J.-F. Pérol, De l'Industrie Microlithique de Lacan (Brive, 1935).

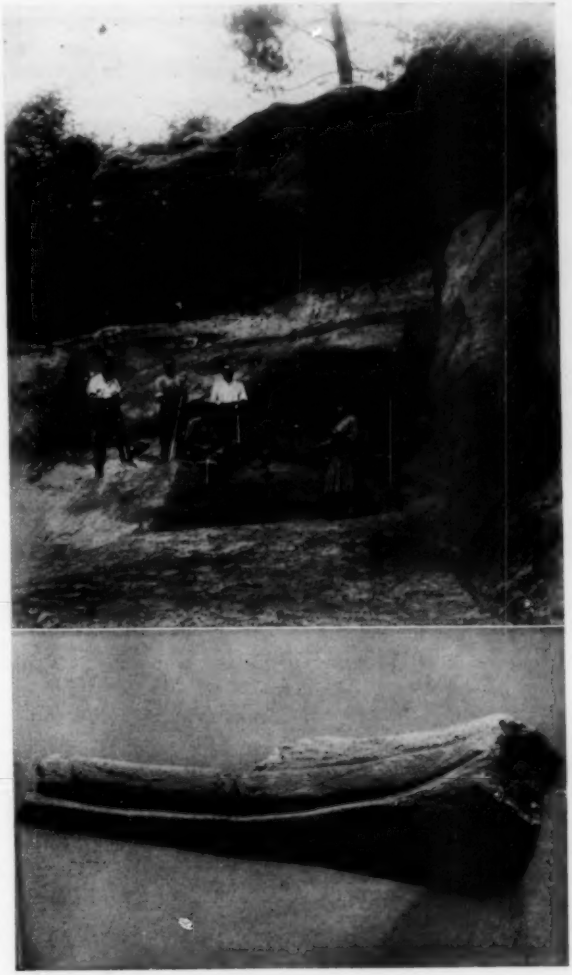


FIG. 2. UPPER, The Cave of Puy-de-Lacan (Corrèze). The shadow below the entrance marks the overhang of the little cliff, with hearth beneath (×, fig. 1). LOWER, Fragment of reindeer antler from Magdalenian III at Laugèrie Haute (Dordogne) showing method of cutting elongated pieces to be made into implements or arms.

Through the kindness of M Albert Dejean, of Brive, to whom we were strangers, we obtained from his cousin, Baron Docteur Charles Le Clere, of Payzac, owner of the land, the generous permission to excavate. We wish again to express our thankfulness to these gentlemen.

Having dug to bed rock in the cave without striking an expected archaeological deposit, although we found a good many flaked flints, we ran our trench on to the talus and twenty-five meters down the slope. The cross-section (fig. 1) shows three archaeological beds there brought to light: A, B, C, as designated from the bottom upwards. They abutted against a low cliff in front of the entrance, beneath a layer of sand, D, which extended down the talus from inside the cave. At eighteen to twenty meters from the rock, A, B, and C gradually merged with the sand of the talus and were no longer distinguishable. Maximum thickness: A, 45 mm.; B, 54 mm.; C, 65 mm.; D, 1 m. 15 mm.

These four beds we excavated systematically in the summer of 1929, one layer at a time, working uphill. The debris was shovelled down the slope to right and left of an oak which we hoped to spare, near the foot of our digging, but which died when the moisture had drained from the block of earth in which it was rooted. Near the rock, a hearth or oven (× in fig. 1), lined with blackened river stones sunk in the sand beneath our bottom layer, contained disintegrated charcoal and a granite lamp whose underside had been fashioned into broad facets, apparently by rubbing or grinding.

Rapid decay of organic matter in the sandy soil of our archaeological beds had resulted in total disappearance of the admirable artifacts of bone, antler, and ivory (tools, weapons, engravings, and sculptured forms) such as at sites in calcareous soil, like that of Dordogne, serve as a means of distinguishing between the different epochs of the Upper Palaeolithic and also between the different levels of those epochs. Of the remains of fauna, too, we consequently found almost nothing—a few fragmentary molars of horse and bison. The culture brought to light was, however, recognizable as Magdalenian by the evolved style of the animal engravings on stone, herewith reproduced, and by the presence of flint implements of certain types peculiar to that horizon. The most characteristic of these are the short, flat scraper, with abrupt, retouched edges, called *raclette* (fig. 4, nos. 3, 4); the dentate blade, with or without retouched margin (fig. 3, no. 1; fig. 4, no. 1) and the parrot beak graver, of which we found only one, an undeveloped specimen.[5] The other types of the Magdalenian flint industry

[5] A drawing of a good specimen of the parrot beak graver may be seen on p. 192, Vol. 1, of Dr G. G. MacCurdy's useful "Human Origins" (New York and London, 1926).

The drawings of flints reproduced in our Figures 3 and 4 (except fig. 4, no. 4) are by the skilled hand of Abbé J. Bouyssonie.

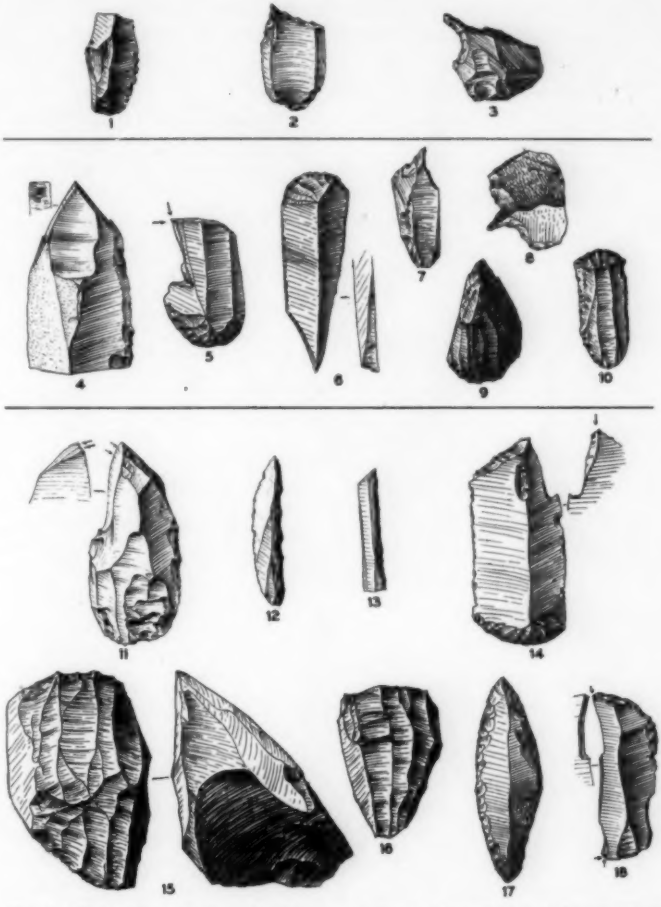


FIG. 3. Flint implements from the three upper levels, Cave of Puy-de-Lacan (Corrèze). Level D: 1, dentate blade; 2, 3, borers. Level C: 4, spalled graver (*burin bec-de-flute*); 5, 6, end scraper combined with graver; 7, 8, borers; 9, double nucleiform scraper; 10, end scraper. Level B: 11, carinate graver (*burin caréné*); 12, 13, blades with retouched margin; 14, end scraper combined with graver; 15, nucleiform scraper, called "plane" (*rabot*); 16, core (*nucléus*); 17, retouched flake; 18, multiple graver.

had already appeared in the Aurignacian and most of them in the Solutrean, which latter is distinguished from both by peculiar forms showing a special

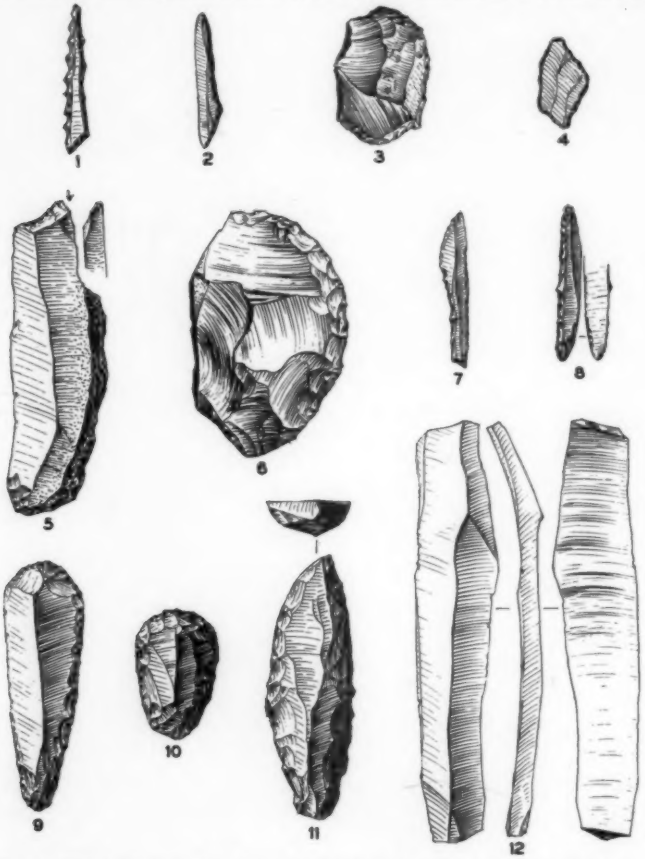


FIG. 4. Flint implements from lowest level, Cave of Puy-de-Lacan (Corrèze). Level A: 1, dentate blade with retouched margin; 2, blade with retouched margin; 3, 4, flat scrapers with abrupt retouched edges (*raclette*); 5, scaled graver (*burin à troncature retouchée*); 6, Mousterian side scraper (*racloir*); 7, 8, blades with retouched margin; 9, double end scraper; 10, oval scraper; 11, retouched flake; 12, unretouched flake.

technique. The general resemblance of our flint material to that of Aurignacian sites in the region of Brive is frequently striking. One could hardly

escape the impression that the artisans of Lacan were heirs of the Aurignacian tradition of flint work, although they no longer produced certain tools characteristic of the typical Aurignacian, such as the so-called "busked" graver with a notch, the "strangled" blade, and the true Tarté scraper.

With a few exceptions, flake tools of the Upper Paleolithic are smooth and unretouched on one face, the same being the inner face as fractured from the core, with a bulb of percussion often showing near the end where struck with a hammer stone (*percuteur*); while the other or outer face usually shows one or more longitudinal ridges produced by primary flaking before removal from the core (fig. 4, no. 12).

TABLE 1. TOTALS OF FLINTS FROM ALL LEVELS EXCAVATED

1.	Gravers (*burins*)	2893
2.	End scrapers (*grattoirs sur bout de lame*)	1081
3.	Scrapers with abrupt edges (*raclettes*)	5
4.	Thick scrapers with bulb (*grattoirs épais avec bulbe*)	7
5.	Nucleiform pieces (*pièces nucléiformes*)	1073
6.	Borers (*perçoirs*)	195
7.	Blades with retouched margin (*lamelles à bord abattu*)	172
8.	Retouched flakes (*lames retouchées*)	328
9.	Unretouched flakes (*lames sans retouches*)	818
10.	Flakes with crimped crest (*pièces à crête écrasée*)	120
11.	Flakes with truncated, splintered ends (*pièces esquillées*)	17
12.	Burin spalls (*lamelles de coup-de-burin*)	1302
13.	Tablets (*tablettes*)	62
14.	Mousterian pieces (*pièces moustériennes*)	5
	Total without chips (*éclats*)	8078
15.	Chips (*éclats*)	16743
	Grand total	24821

The principal flint tool of the Magdalenian, brought to a high degree of perfection in Aurignacian times but less used by the Solutreans, was the graver or *burin*. This implement, long supposed to have served especially for engraving, was also and no doubt chiefly employed for working bone and probably wood. The essential feature of the graver is a short, robust cutting edge made across the thickness of the flake at one of the extremities or angles. Gravers may be grouped in three general categories, of which characteristic forms are illustrated in our drawings as follows (mentioned here in order of their frequency at Lacan): I, the spalled graver (*burin bec-de-flute*), Fig. 3, Nos. 4, 5 (upper end, angle at left), and 6 (lower end); II, the scaled graver (*burin à troncature retouchée*), Fig. 3, Nos. 14 (upper end) and 18 (upper end), also Fig. 4, No. 5 (upper end); III, the fluted graver (carinate type, *burin caréné*), Fig. 3, No. 11. These three general categories

of gravers, as classified by Mr H. V. V. Noone, comprise in all sixteen different types found in the Upper Palaeolithic.[6]

The Magdalenians seem to have been the first to make general use of the graver for cutting elongated pieces from bone or antler for the production of harpoons, spear points, needles, etc., by working the short transverse edge back and forth in parallel grooves. The photograph (fig. 2, lower) shows the process uncompleted on a piece of reindeer antler unearthed in Magdalenian III at Laugèrie Haute, Dordogne.[7]

At Lacan, gravers run to 35.8 percent of the flint industry, without counting the chips, and to 52 percent of the total number of tools, without counting burin spalls, tablets, flakes with crimped ridge, etc.

In 1930, we dug three remaining portions of the deposit (one about the dead oak, two along the sides) which we had intended to leave as "witnesses" (*témoins*) of the stratigraphy, but which had already begun to give way under the rains of the preceding winter, so that we saw they would not endure. Finally, we emptied the cave of sand varying in depth up to a little over a meter.

On the rock floor within, thus exposed, we found to our surprise unquestionable traces of metal work, where apparently quarry men had tried the quality of the sandstone and had grooved channels to drain off seepage water. There could be no doubt that the ground in the cave had been turned over to the bottom. Both in the cave, however, and also outside, in the same bed, D, extending on to the talus, we found numerous Magdalenian flint implements mixed with others of Mesolithic character and with potsherds of historic age, Gallo-Roman and Merovingian. Two inferences seemed clear: that a Magdalenian deposit formerly existing in the cave had been partly but never entirely emptied on to the talus, and that this bed, D, had, strictly speaking, no stratigraphic significance. In other words, the

[6] A standard French work on gravers is Captain M. Bourlon's "Essai de Classification des Burins" (Revue de l'Ecole d'Anthropologie, No. 7, Paris, 1911). An even more comprehensive study is H. V. V. Noone's "Classification of Burins or Gravers" (Journal, Royal Anthropological Institute, Vol. 64, Jan.–June, 1934). Mr Noone's essay has also appeared in French, in Compte Rendu du Congrès Préhistorique de France (Périgueux, 1934).

We have borrowed the English terms "spalled" and "scaled" from Noone, the French terms from Bourlon and from Bardon and Bouyssonie.

[7] By Miss Barbara Kidder, who has kindly allowed us to reproduce the picture. To obtain elongated pieces for making tools and arms, the Aurignacians and Solutreans *split* bones, apparently with flint wedges. Two instances have, however, been recorded where Aurignacians (Perigordians) used the graver to remove longitudinal cuttings from reindeer antler by making parallel grooves. Each case was that of a single specimen, one observed by Denis Peyrony in the top layer, Upper Aurignacian (Périgordien V) at La Ferrassie; the other by his son, Elie Peyrony, in the same level at La Forêt, both in Dordogne.

age of objects found in this layer could be determined only by comparison with types of known age.

The underlying beds, C, B, and A, were undoubtedly in place. Notwithstanding the mobility of their sandy composition on a talus washed by rain and by water from the cave, these three layers had retained a stratigraphic character that appeared in the homogeneous nature of their archaeological contents and in progressive changes, from level to level, in the dimensions, relative frequency, and to some extent in the form of certain flint implements—changes that run more or less regularly through A, B, and C, but are usually arrested in D. An example is seen in the similarity of variation in the average lengths of gravers and of end scrapers, shown graphically in

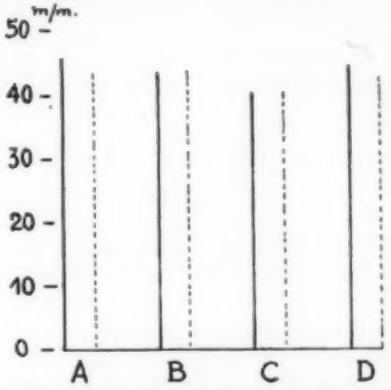


FIG. 5. Average lengths, in millimeters, of gravers (unbroken vertical lines) and of end scrapers (dotted vertical lines) in the successive levels.

Figure 5. As an example of progressive changes in relative frequency, the percentage of multiple gravers (those with more than one working member, fig. 3, no. 18) decreased with the lapse of time: A, 34.9; B, 27.5; C, 24; while that of broken gravers (fig. 3, no. 4) increased: A, 33.7; B, 43.5; C, 44.2. Similarly, the percentage of double end scrapers (fig. 4, nos. 9, 10; characteristic rather of the Aurignacian) diminished rapidly: A, 13.3; B, 8.8; C, 4; while that of end scrapers associated with gravers (fig. 3, nos. 5, 6, 14; fig. 4, no. 5; a favorite combination in Magdalenian times) kept augmenting: A, 23.3; B, 39; C, 43.9. Not to multiply instances, the foregoing may suffice to illustrate the stratigraphic individuality of the three lower beds and the continuity of cultural changes that developed during their formation.

Similar phenomena, which could be expressed by curves, may be traced in the percentage of most of the items in Table 2.

TABLE 2. PERCENTAGES OF THE SEVERAL CATEGORIES MAKING UP THE TOTAL OF FLINTS FROM EACH LEVEL

	A	B	C	D
1. Gravers	22.5	31.1	38.9	32.4
2. End scrapers	13.4	9.2	9.1	10.5
3. Scrapers with abrupt edges	0.3	0.0	0.0	0.0
4. Thick scrapers with bulb	0.0	0.2	0.0	0.1
5. Nucleiform pieces	9.7	10.1	11.0	16.1
6. Borers	1.1	1.5	1.8	2.4
7. Blades with retouched margins	4.9	1.5	0.8	1.5
8. Retouched flakes	5.7	4.2	2.6	3.4
9. Unretouched flakes	29.5	26.0	16.8	24.6
10. Flakes with crimped crest	1.9	1.0	1.6	0.8
11. Flakes with truncated, splintered ends	0.5	0.1	0.0	0.2
12. Burin spalls	7.9	14.1	16.8	6.8
13. Tablets	2.5	1.0	0.6	0.9
14. Mousterian pieces	0.1	0.0	0.0	0.3
	100.0	100.0	100.0	100.0

The two engravings here reproduced, one representing bison and a bird, the other three young bison, are lightly traced on small slabs of fine-grained sandstone (pls. 12 and 13). Unearthed just below the surface of layer C, near the rock and not far from each other, they were possibly by the same hand but are evidently of the same school, that of the great period of Magdalenian art. Abbé Breuil attributes them to Magdalenian V–VI. In contrast to the mastery shown in these drawings is the immaturity of a horse's head carved in relief on a small block of sandstone picked up in earth that had fallen from the side of our exploring trench. It is in the characteristic primitive style of sculptured horses' heads from Magdalenian III–IV, found in the Valley of the Vézère by M Peyrony and others and at Isturitz by Count de Saint-Périer, who considers the profile on our block to be of approximately the same age. Though not found in place, it would seem to have come from our lowest bed, A. Its presence at Lacan, in relation to the developed technique of the two engravings, is of interest as apparently bearing out the supposition that in the region of Brive Magdalenian art evolved along lines analogous to those already known in Périgord and in the French and Spanish Pyrenees.

Apart from engravings unquestionably Palaeolithic, one of us (L.K.) unearthed some fifty stones and a potsherd bearing incised signs different

from anything previously signalized in the country. Among them are characters or letters, some of these forming apparently lineal inscriptions; two stones are engraved with conventionalized human visages, others with cupules in various arrangements. The publication of the signs, illustrated by line drawings in the Revue Archéologique,[8] gave rise to the expression of very different opinions regarding their age. They were variously ascribed to Glozelian culture in late Magdalenian or early Neolithic times,[9] to Gallo-Roman magic (supposed according to this view to have been practised in the Cave of Lacan),[10] and to a survival in the Bronze Age or even later[11] of conventionalized anthropomorphic figures of Megalithic origin. As the age of these signs is a problem outside of the field of our own studies, we limited ourselves, in our article, to describing the specimens and the stratigraphic conditions in which each piece came to light. The impression has grown upon us, however, that one has here not the product of a single epoch but of each of the periods to which the signs have been attributed. Observers are agreed that there is no doubt of their authenticity. We found them apparently in place in all levels, the largest number being in D.

The question to which of the six levels of the Magdalenian the three dug by us belong—a complex question, made none the simpler by the disappearance of bone artifacts, which characterize the different levels—will be taken up again when the work at the sand pit has brought to light the remaining vestiges of prehistoric deposits on the talus. Meantime, indications observed in the course of our work may here be stated.

The finding of *raclettes* (flat scrapers with abrupt edges, characteristic of the old Magdalenian) in our lowest bed, A, seems to show that the site was inhabited at that level before the introduction of the primitive bone harpoon in Magdalenian IV, and may possibly have been occupied even earlier than Magdalenian III. On the other hand, the presence of examples of fully evolved art in level C shows that Lacan was inhabited up to Magdalenian V—we should say also in VI were it not that the site has yielded us but one, under-developed specimen of the parrot beak graver, a type particularly characteristic of that level. With a good deal of doubt regarding occupation in VI, we should therefore place our three undisturbed levels as approximately contemporaneous with two well known Magdalenian sites in

[8] L. and H. H. Kidder, Fouilles du Puy-de-Lacan, Pierres avec Signes (Revue Archéologique, Vol. 35, 1932, pp. 1–21).

[9] Dr A. Morlet in Le Mercure de France (Paris, June 1, 1932).

[10] M. C. B. in Man (Nov., 1933).

[11] Commandant F. C. E. Octobon in "Homenagem a Martins Sarmento" (Guimares, Portugal, 1933).

Dordogne, Laugerie Basse (III–VI) and La Madeleine (IV–VI), as also with Magdalenian III, and possibly II, at Laugerie Haute. Mesolithic types, including microliths, in the sand of level D suggest an occupation, perhaps after an interval, by Tardenoisians. And finally, historic pottery shows that Lacan was frequented in Gallo-Roman and in Merovingian times.

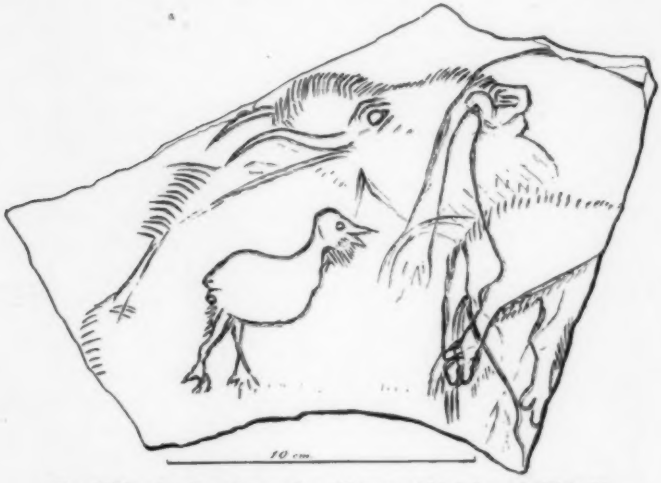
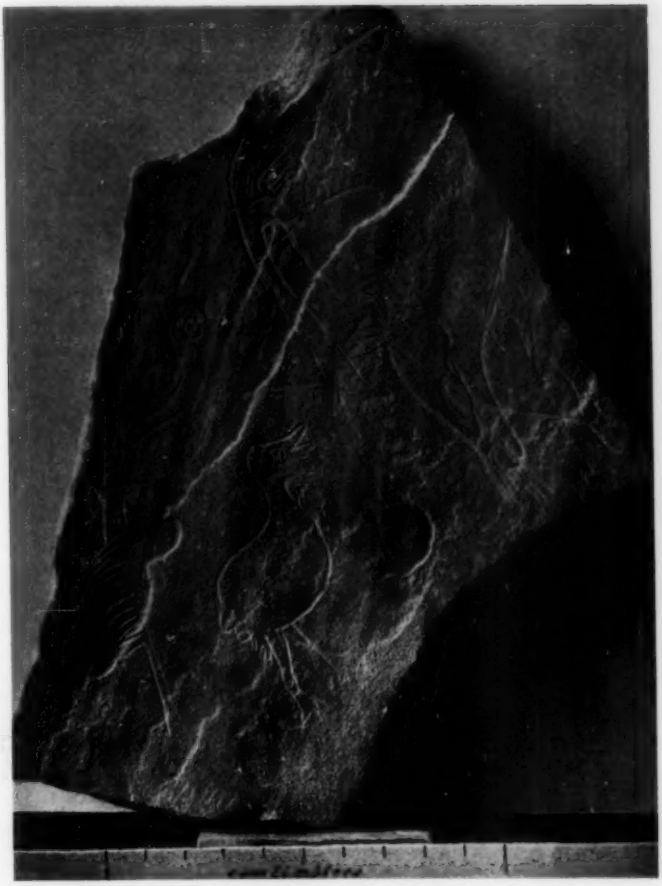


FIG. 6. Line drawing of engraving of bison and bird shown in Plate 12.

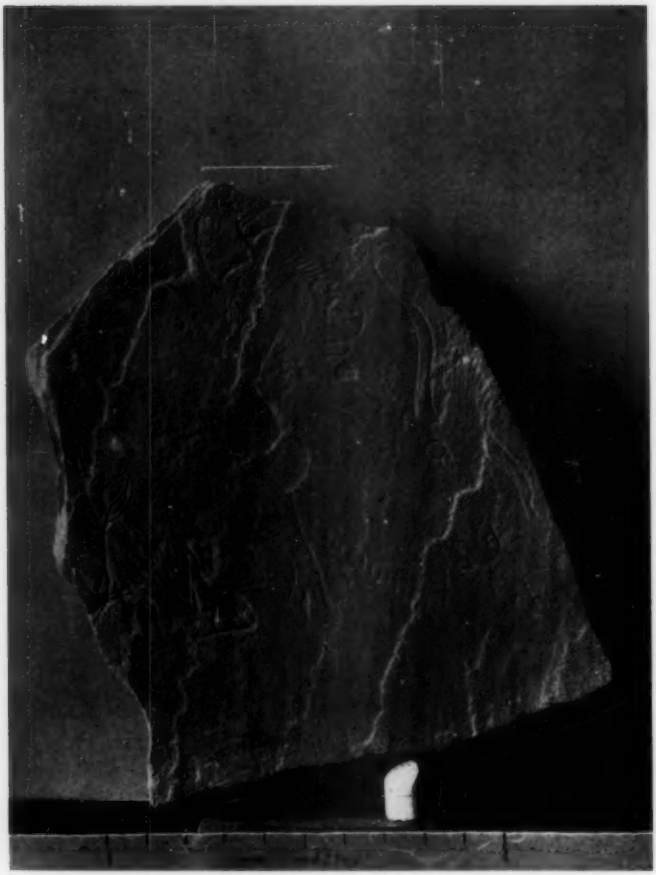
The material excavated at Lacan is in the Musée Ernest-Rupin at Brive, except the engraving of the three young bison (plate 13), which is in the possession of Baron Le Clère, at Payzac (Dordogne).

Besides much help given us by French prehistorians, particularly by Chanoines A. and J. Bouyssonie and M D. Peyrony, in the study of this material, as also by Professor A. S. Barnes in the analysis of our statistical observations, we wish to acknowledge generous financial aid given unasked by Mr William North Duane.

LES EYZIES, DORDOGNE
FRANCE



Engraving of bison and bird on a small slab of fine-grained, reddish-gray sandstone. Magdalenian V–VI. From the prehistoric site of Puy-de-Lacan, Corrèze, France.



Engraving of three young bison on a small slab of fine-grained, gray sandstone. Magdalenian V–VI. From the prehistoric site of Puy-de-Lacan, Corrèze, France.

FIG. 7. Line drawing of engraving of three young bison shown in Plate 13.

ETHNOLOGICAL AND HISTORICAL IMPLICATIONS OF CERTAIN PHASES OF MAYA POTTERY DECORATION[1]

By MARY BUTLER

NEGATIVE PAINTING

FROM the ethnological point of view, the most striking decorative feature of Piedras Negras pottery is the prevalence of negative painting in polychrome wares. This consists of painting a design on a vessel in a resistant substance such as hot wax, covering the vessel with a darker coat of color, and subsequently melting off the resistant material, revealing the design in the lighter color. Such a process has been called "true" negative painting to distinguish it from the "false" method of painting in directly a darker background around an undisturbed lighter design. It is used today in Guatemala and Salvador to decorate gourds. Piedras Negras is the only Old Empire site where it appears as a characteristic of polychrome pottery. None of the published material from the Peten shows more than an occasional occurrence of it. An unpublished collection from the Atlantic Highland area, now in the University Museum, Philadelphia, is characterized by negative-painted pottery, but we cannot be sure of the time levels represented. The negative-painted wares from this district differ in style and coloring from the Piedras Negras ware. What specimens we have of negative painting from the rest of the Maya area tie into either the Piedras Negras or the Highland group.

As far as we know, its principal use in this area in prehistoric times was in the Old Empire time level and Highland derivations from it. It is not a characteristic of "Archaic" pottery, since Usulutan ware, which superficially bears it some resemblance, owes its negative stripes to painting of a pattern in a fugitive color. It is not a characteristic of Yucatecan pottery.

Although in Mexico, too, it has been thought not to occur in archaic levels, Dr Vaillant reports a few examples in "Archaic" material from Ticoman[2] and Gualupita.[3] However, we can no longer think of archaeological

[1] The various points discussed here were brought out by a study of the pottery found in 1931–32 at the Maya Old Empire site of Piedras Negras, Peten, Guatemala, but were not included in the report on that material (M. Butler, Piedras Negras Pottery, Piedras Negras Preliminary Papers, University [of Pennsylvania] Museum, No. 4, 1935), since they were theoretical matters, of general rather than specific interest. They were discussed in an unpublished, philosophical, Introduction which served to make the report acceptable to the Department of Anthropology of the University of Pennsylvania as the writer's doctoral dissertation. Another section of this Introduction has been published as Pottery Study in the Maya Area (American Antiquity, Vol. 2, No. 2, 1936, in press).

[2] G. C. Vaillant, Excavations at Ticoman (Anthropological Papers, American Museum of Natural History, Vol. 32, No. 2, 1931), pp. 290, 334, 374–75.

objects as occurring throughout the Valley of Mexico in three neatly superimposed layers, with "Archaic" at the bottom, Toltec above, and Aztec on top. We know the approximate time range of Aztec material, we know that Toltec began before Aztec, and "Archaic" before Toltec, but we cannot tell yet how long "Archaic" and Toltec may have persisted from site to site. According to tentative dating suggested for the "Archaic" sites referred to,[4] the negative-painted sherds found there may well be considered as no earlier than the second half of the first millenium A.D. Negative painting occurs frequently on pre-Toltec pottery at Teotihuacan, infrequently on Toltec pottery.[5] It is not a characteristic of typical Aztec wares. The Mexican sites where it has been found in any quantity are outside the Valley of Mexico, in the states of Mexico, Jalisco, and Michoacan, and the time relationships of wares found there are not yet fully determined.

While there will be definite historical significance to the distribution of negative painting, as further archaeological work enables us to trace it, the appearance of this type of pottery painting is exceedingly interesting from the technical side alone. It is a solution of the kind of problem that fascinates engineers today; the successful application of a technique usual in one process to material to which it is naturally foreign. It is an instance of invention changing pottery-making, but any conclusions reached as to its origin must at present be purely hypothetical.

Painting pottery with hot wax or a similar resistant substance is not a process native to pottery decoration, nor one that would have evolved naturally from it. It could have had one of two origins: observation and utilization of the properties of hot wax or resin, or application to pottery painting of a technique used in some other craft. We know that the early Maya were great bee-raisers, but we do not know their methods, nor what use, if any, they made of beeswax. They are not supposed to have used candles. Thompson, however, points out that they may have had them and that wax must have been used ceremonially in Mexico, since it has been found in *candeleros*, small pottery objects of unknown purpose presumably

[3] S. B. and G. C. Vaillant, Excavations at Gualupita (Anthropological Papers, American Museum of Natural History, Vol. 35, No. 1, 1934), pp. 81, 83, 85.

[4] S. Linné, Archaeological Researches at Teotihuacan, Mexico (Ethnographical Museum of Sweden, New Series, No. 1, London and Stockholm, 1934), p. 76; G. C. Vaillant, Stratigraphical Research in Central Mexico (Proceedings, National Academy of Sciences, Vol. 18, No. 7), p. 489.

[5] E. Noguera, Antecedentes y Relaciones de la Cultura Teotihuacana (El Mexico Antiguo, Vol. 3, Nos. 5–8, Mexico, 1935).

ceremonial.[6] It may be, then, that negative pottery painting originated in Mexico through observation there of some use of hot wax, or of the potentialities of its properties. On the other hand, we cannot ignore other possibilities.

We do not know what arrangements the Maya had for artificial lighting. They may have used resinous torches, although these are hardly practical for giving steady light in a small house. If so, drops from one of these torches may have fallen on a vessel, before it was painted; the potter, observing the result after painting and firing, might see the possibility of turning such an error into a process for pottery decoration. The use of hot wax as a medium, however, is unusual, and when there is near at hand a craft to which it is necessary, the possibility of some connection between the two uses of the medium seems more plausible than independent invention.

The *cire perdue* process of metal-casting was known in South America, Central America, and Mexico at the time the Spaniards came. We do not know how long before that it had been in use. Metal-casting has been considered as spreading from a center of origin in northern South America. We do not know when or how it reached Mexico, if it spread by land, since there is so far no evidence of metal-working in the Maya Old Empire, and only two or three gold ornaments have been found at sites of that period. What metal there is from Yucatan, apart from Central American importations, may well be due to Mexican influence. Landa refers to the Mexican origin of the small copper axes used as one form of currency there in the sixteenth century. The knowledge of metal-working may have been transmitted into Mexico from Central America along the cordilleras, after Maya power had shifted north into the geographically peripheral area of Yucatan. The occurrence of metal objects in the Highlands of Guatemala would bear this out.

The lack of metal and the appearance of negative painting in the Maya Old Empire mean that the second is not a corollary of the first. Some one in Central or South America, where metal was being worked and the *cire perdue* method invented, may have had the wit to apply this unusual medium to pottery decoration. Its use would then have spread independently of metal or metal-working, since it had now become a phase of pottery decoration and had no further connection with metal.

The whole question of derivation hinges on the date of the origin of metal-casting, and this cannot be known until more work has been done on South American archaeology. Nordenskiöld thinks copper and bronze were characteristic of the later cultures in Peru, but implies that these cultures

[6] J. E. Thompson, Ethnology of the Mayas of Southern and Central British Honduras (Anthropological Series, Field Museum of Natural History, Vol. 17, No. 2, 1930), p. 105.

may have covered a long period of time.[7] According to Rivet,[8] the gold work which flourished in Colombia, as a result of trade knowledge brought by Caribs from the hinterland of Guiana, is a good deal older, since examples of it are found on the Peruvian coast in the Proto-Chimu period. Tello reports gold objects from his first epoch, the archaic culture, which consist of ornaments in the Chavin style from tombs at Chongoyape, Lambayeque, on the northern coast of Peru.[9]

Negative painting is found in the Mexican-Maya area during the first half of the first millenium A.D., and if the tentative dating previously referred to should hold, may have reached the "Archaic" Mexican levels by way of the Maya Old Empire.

Dr Linné has suggested the derivation of negative pottery painting from resist-dyeing.[10] This technique was known in pre-Columbian America only in its tie-dyeing phases: tie-dyeing of material already woven, and *ikat*, the application of the same process to the threads before weaving. In this method, it is necessary only to wrap sections of the cloth or thread with some material, such as fibre, that will resist dye. It does not require the use of hot wax or some similar resistant substance in temporarily liquid form such as is used in the batik method. In fact, Dr Linné says that he has no information of wax ever having been used in preparation of the binding thread for tie-dyeing, but considers it not impossible that it was so used. It seems to me that a technique, such as metal-casting, in which hot wax, or a similar substance, was a constant factor, is a more likely source of derivation for negative painting than a technique in which it may never have been used. Tie-dyed designs may have furnished the inspiration; tie-dyed technique does not seem apt to have furnished the means.

NEGATIVE DESIGN

An interesting corollary to the appearance of negative painting among the highest civilizations of pre-Columbian America is the possible significance of the distribution of negative design on pottery throughout pre-Columbian America. To work the background rather than the design, so that the latter stands out lighter than the former, is an inverted sort of idea which may have originated independently in different areas, but which is striking enough to warrant consideration of the possibility of its diffusion

[7] E. Nordenskiöld, The Copper and Bronze Ages in South America (Comparative Ethnographical Studies, Vol. 4, Göteberg, 1921).

[8] P. Rivet, L'Orfèvrerie colombienne (21st International Congress of Americanists, Part 1, The Hague, 1924).

[9] J. Tello, Antiguo Peru, Primera Epoca (Lima, 1929), Fig. 107.

[10] Linné, *op. cit.*, Appendix 1.

from the negative painting belt, which stretches from Jalisco, Mexico, to Paracas, Peru.[11]

We can find in the Maya area the whole range of negative design on pottery. In painted wares, we find negative painting, "true" and "false;" in carved wares, we have *champ-levé*, a raised design with incised details against a flat background; in incised wares, we have figures outlined against punctate and hatched backgrounds. All these techniques use both geometric and naturalistic designs, and all furnish examples of negative design. The *champ-levé* pottery which bears naturalistic designs may here be taken as a derivative of carved pottery with details in low relief, since a steady development can be traced from one to the other. Pottery carved or stamped with figures in low relief may be due to imitation of stone sculpture or painted walls or vessels. Whatever the inspiration, the technique is the same as that of stone carving and is probably derived from it. *Champ-levé*, in the Maya area at least, seems to be a modification of this technique. It is infrequent in the Old Empire, and cannot be an original source for negative design.

Toltec *champ-levé*, where the design is usually a dark one that stands out from a red-painted background, and cloisonné ware, a specialized Mexican development of the *champ-levé* technique, imitate painted pottery. While the technique is a negative one, the design produced, in Middle America outside the Maya area, tends to be positive. In some parts of the Maya area, even today, negative painting and *champ-levé* are used on gourds to produce negative designs. These techniques apparently did not spread north of Mexico, although a few vessels and a piece of textile from southeastern United States suggest decoration by negative painting, probably "false."

The derivation of negative design on incised wares may lie either in negative-painted or in *champ-levé* design. The first possibility would make it a direct development of negative painting, the second a parallel development.

The interesting thing about negative design is its distribution in North America. In the Maya area it appears in the Highlands, Chiapas, and Yucatan, in designs, that, when naturalistic, are definitely decadent and suggest a relatively late time level. A jar from Tzimin Kax with such decoration is assigned by Thompson to the local Holmul V period.[12] It is not a characteristic of Mexican pottery nor of that of southwestern United States, but it

[11] *Ibid.*, Map 1, p. 166.

[12] J. E. Thompson, Archaeological Investigations in the Southern Cayo District, British Honduras (Anthropological Series, Field Museum of Natural History, Vol. 17, No. 3, 1931), Pl. 48.

does appear on the pottery of the important Hopewell culture of the mound region of the Mississippi Valley where there is a complex of traits showing artistic connections with Mexico. It is again evident in the underlying archaeological layer in southeastern United States that is considered by Setzler to be related to the Hopewell culture.[13] This is an area that is steadily growing in archaeological importance, and that also contains material that suggests contact with Mexico.

POLYCHROME DECORATION

Considering in some detail the historical implications of various phases of Maya pottery decoration, it is obvious that polychrome wares are the significant phase of painted decoration for diagnosis. Piedras Negras polychrome may be roughly divided into a red group and an orange group, according to the background color used. Negative painting is, with two exceptions, confined to red polychrome, which comprises two-thirds of the polychrome group and may at present be considered local, in contrast to the orange polychrome that is found in varying styles throughout the Maya area. The negative-painted ware that forms a large part of Piedras Negras red polychrome is at present unique in style. It consists of white and orange-yellow designs against a red-orange background, painted by the "true" negative technique, with, sometimes, an apparent use of the "false" technique for the final red coat.[14] The designs in this are simple silhouettes, chiefly variations of the circle. There is an elaboration of this type where black line decoration is inserted in the light areas, which have become fewer and simpler.[15] There is a small group, entirely negative-painted, with white and orange disks against a brown or brown-black background, which appears elsewhere.[16] A sherd from Hochob (in the collections of the American Museum of Natural History), and the exterior of a bowl, with polychrome interior, from Copan (Peabody Museum), have the same type of decoration.

The only other collection of Maya pottery in which negative painting is an outstanding feature is that from the Alta Vera Paz region, now in the University Museum, Philadelphia. The designs here are mainly white against black, although there are one or two crude examples where the under-slip is red. The designs are more sophisticated than the Piedras Negras ones cited and include birds as well as fairly elaborate geometric

[13] F. M. Setzler, Pottery of the Hopewell Type from Louisiana (Proceedings, United States National Museum, Vol. 82, Article 22, 1933).

[14] Butler, *op. cit.*, Pl. 1, Fig. 1, 2, 6.

[15] *Ibid.*, Pl. 1, Fig. 8, 14, 15, 18.

[16] *Ibid.*, Pl. 1, Fig. 7.

motifs such as a fret-and-dagger. The two examples of "true" negative painting from Holmul III are in this white-and-black style, one vessel having a geometric design, the other a monkey.[17] Since such decoration is frequent in the Alta Vera Paz Highland region, and unusual in the Peten, it seems probable that these two Holmul examples are due to influence from the Alta Vera Paz.

The inferences to be drawn at present about "true" negative painting in the Maya area are that there are two main types: a dichrome, centering in the Alta Vera Paz and a trichrome, centering in Piedras Negras. While there is little more of the distributed trichrome type[16] at Piedras Negras than at the other two sites mentioned, it is at that city one phase of a well-known technique, while at the other cities it forms the only example of that technique. Almost any digging done in Old Empire sites may change the emphasis of this distribution, but it is possible that the type division indicated will persist.

Illustrations of straight-sided bowls from Nakum,[18] Holmul,[19] and Uaxactun[20] suggest that their decoration is done by "false" negative painting. The Nakum and Uaxactun bowls may represent a Peten black-and-white style in this technique; one Uaxactun bowl[21] suggests a development from Piedras Negras Polychrome A.

An outstanding feature of Maya polychrome pottery is what may be called the Chamá style of figure painting. It might be said to represent the highest development of pre-Columbian American painted pottery because of the feeling shown for line and color, and the skill, vigor, and conciseness of execution of the figures drawn. While this style has been considered as a presumably late Highland development from Old Empire pottery,[22] three examples of it, undoubtedly trade pieces, have occurred at Piedras Negras, where they definitely belong to the time of the city's main occupation. Two

[17] R. E. Merwin and G. C. Vaillant, The Ruins of Holmul, Guatemala (Memoirs, Peabody Museum of American Archaeology and Ethnology, Vol. 3, No. 2, 1932), Pl. 28, a, c.

[18] G. C. Vaillant, The Chronological Significance of Maya Ceramics (MS., Thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Harvard University, 1927), Figs. 245–47.

[19] Merwin and Vaillant, *op. cit.*, Pl. 31,a.

[20] E. B. Ricketson, Notes on the Pottery of the House Mounds of Uaxactun (in House Mounds of Uaxactun, Guatemala, by Robert Wauchope: Contributions to American Archaeology, 7, Preprint from Publication 436 of the Carnegie Institution of Washington, 1934), Fig. 31,c; A. L. Smith, Two Recent Ceramic Finds at Uaxactun (Contributions to American Archaeology, 5, Preprint from Publication 436 of the Carnegie Institution of Washington, 1932), Figs. 3,b; 4,c.

[21] Smith, *op. cit.*, Fig. 4,e.

[22] Merwin and Vaillant, *op. cit.*, pp. 81–82.

of these sherds show human figures, another a parrot wing. Both motifs are rare on Piedras Negras painted pottery, where there is relatively little naturalistic design, due, possibly to the geometric cast given to pottery decoration by the type of negative painting used there.

A variant of this parrot design occurs on a characteristic tetrapod bowl from Holmul I,[23] and another on a shallow plaque from a Rio Hondo mound in British Honduras,[24] where polychrome painting is thought to have derived from Holmul V.[25] There seem to be two types of polychrome design running side by side through the first four Holmul periods; a geometric one,[26] and a naturalistic one,[27] that is markedly different in style from the naturalistic decoration characteristic of Holmul V,[28] Yalloch, and the Rio Hondo.[29] The parrot wing design from Rio Hondo suggests a survival there of the earlier as well as the later Holmul polychrome style. Although the Chamá trade pieces at Piedras Negras suggest an earlier date for Chamá polychrome than that referred to above, elements of style and shape preclude its preceding Holmul I, and supplying the source for the Holmul I parrot. The Holmul polychrome style to which this design seems to belong may perhaps show another line of development from the same source that inspired Chamá polychrome. It may possibly have supplied that source.

The Copan polychrome style, divided by Dr Vaillant[30] into three stylistic groups that seem to have chronological sequence, marks the western edge of the southeastern Maya polychrome pottery group. A few trade pieces of Copan I appear at Piedras Negras, and three bowls that suggest local copies of Copan polychrome.

We have, then, in the very nature of the polychrome decoration at Piedras Negras, evidence of a specialized local development of a technique of widespread historical significance, negative painting. While its significance within the Maya area can at present be only suggested, it already indicates contact between Piedras Negras, Copan, and Hochob. The contact with Copan is supported by the evidence of polychrome style, which also serves to show trade with the Alta Vera Paz.

Negative-painted pottery appears also in Mexico, though no quantity

[23] *Ibid.*, Pl. 18,f.

[24] T. Gann, The Maya Indians of Southern Yucatan and Northern British Honduras (Bulletin, Bureau of American Ethnology, 64, 1918), Fig. 52,e.

[25] Merwin and Vaillant, *op. cit.*, pp. 77–78.

[26] *Ibid.*, Pls. 18,b, d; 19,c; 28,h.

[27] *Ibid.*, Pls. 18,c, f; 20,e; 28,g.

[28] *Ibid.*, Pls. 29,a, c; 30.

[29] Gann, *op. cit.*, Pls. 19, 23–28.

[30] Vaillant, MS., 1927.

comparable to that from Piedras Negras has been found at a site that can be dated as early as the Maya city. It seems possible that its earliest appearance in Mexico is no earlier than, if as early as that at Piedras Negras, and that its presence at that city may show it to have spread in the Mexican-Maya area from the Maya Old Empire. If that is the case, its appearance there, seen in relation to pre-Columbian America, shows that the technique spread north through the Maya Old Empire in its diffusion north and south from a probable place of origin in northern South America or in Central America, to the limits of Jalisco and Paracas as indicated by Linné, and possibly beyond.

Any significance in the variations indicated in polychrome style is not capable of being pushed beyond the Maya area. Polychrome pottery painting is a widespread trait that is almost bound to appear where good pottery is made. The styles that developed in the various ceramic areas in Middle, Central, and South America are well defined and distinct from each other, and the local variations within each area are important only for that region, unless we discover them to have covered a far greater range through trade communications. This has not as yet been shown to be the case with any of the styles cited.

CUT DECORATION

The most interesting phase of cut pottery decoration at Piedras Negras is the low-relief carving of scenes containing human figures that occurs on several sherds of Orange 3 bowls. This is a type of pottery decoration that may well have derived from the stone and wood carving so highly developed during the Old Empire. The earliest examples bear a definite resemblance in style and subject matter to Old Empire stelæ and lintels; later ones show the same loss in skill that is apparent in Yucatecan stone figure carving. The sherds from Piedras Negras are carved in the Old Empire style, like sherds from Nakum, Copan, and Palenque, and are made of a fine orange paste. Similar carved bowls, made of similar paste, come from Yaxchilan (in the Peabody Museum), Kixpek in the Highlands (University Museum), and the Toltec level at Xolalpan near Teotihuacan.[31] Associated with these sherds at Xolalpan was similar ware carved in a style very like that of distinctive black bowls found by Gann in British Honduras.[32]

Champ-levé, a cutting away to an even depth of the background of a design, occurs occasionally at Piedras Negras in fragments of geometric design. This technique does not really come into its own in the Maya area until the Yucatecan period, when it is used for fine reproductions on pottery

[31] Linné, *op. cit.*, Fig. 130.
[32] Gann, *op. cit.*, Pl. 17–18.

of figures of men and gods. It seems at present as though fine polychrome wares were replaced to a large extent among the later Maya by carved wares, and one can trace a definite sequence from such vessels, with details carved in fairly high relief, through vessels on which the detail relief grows lower and lower, to vessels on which the detail is all incised, and the decoration a *champ-levé* design on only two planes. The suggestion would be that in the Maya area *champ-levé* decoration on pottery was an outgrowth of relief carving in the same medium.

The particular type of carved ware found at Piedras Negras seems to belong to the Usumacinta drainage. Its appearance at Xolalpan associated with similar ware carved in a style characteristic of a British Honduras site suggests that the two may perhaps be contemporary, and may serve to date the latter site.

Relief carving of scenes on pottery may very well have been a specialized development in the Maya part of Middle America, and have been a result of Maya influence when found elsewhere. When it appears at Teotihuacan, it is obviously exotic. A few specimens have been found in southern Mexico,[33] but their style suggests the Maya even when the figures shown wear Toltec costume. The one from Monte Alban is very possibly a trade piece of Yucatecan Carved Slateware.

Relief carving on pottery seems to be lacking in Central America south of the Maya area. It occurs in Peru, but usually in the modified form of relief on mouldmade vessels. There is probably no connection between this and Maya pottery carving.

Champ-levé, on the other hand, flourished in Mexico. It is a characteristic of the Toltec pottery of Teotihuacan, appears in Oaxaca, and is the basic technique that produced the cloisonné pottery of the Tarascan area. It is interesting to note, however, that Toltec *champ-levé* and the Mexican cloisonné usually imitated, in their coloring, positive-painted design. It seems possible that the technique may have been introduced into Mexico from the Maya area, since it does not occur in Mexican "Archaic" levels. *Champ-levé* design occurs from Mexico to Peru and Bolivia, and even in Amazonian material from Marajó.[34] It may possibly have diffused from one source, and if this should be relief carving on pottery, that source may have been in the Maya Old Empire.

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[33] Merwin and Vaillant, *op. cit.*, p. 79.

[34] R. Verneau, Sur la répartition en Amérique des Poteries decorées au "champ-levé" (Journal, Société des Américanistes de Paris, Vol. 12, 1920).

ADDITIONAL NOTES ON THE ISLAND CARIB OF DOMINICA, B.W.I.

By DOUGLAS TAYLOR

AN earlier article published in the AMERICAN ANTHROPOLOGIST[1] was written rather hurriedly after several cursory visits to the Carib Reserve of Dominica, British West Indies. Having since then been able to spend some consecutive weeks among this interesting group, I now take the liberty of offering further comments and corrections together with an additional vocabulary.

Physically, the Dominican Caribs are a small though sturdy race—the men averaging around five feet four inches and the women about five feet one inch in height. They have sleek black hair, high foreheads, broad cheek-bones, straight nostrils, and rounded chins. Their eyes are long and narrow—though usually *not* oblique— with long silky lashes. Their ears are very long and often lobeless, their feet small and extraordinarily high-arched. The girls are broad-shouldered, tend to be plump, and have powerful but almost straight loins. Men and women alike have little or no body-hair. The full-blooded Indian's color is quite distinct from that of a mulatto, and is best described as resembling the dried bark of cinnamon. The shade varies with the occupation followed—fishermen are darker than woodsmen—and does not always indicate the purity of the strain. Like all others of their race, the Indians of Dominica are naturally shy and reticent, sensitive to an extreme, quick to take offense, and given to occasional moods of melancholy or unreasonableness.

Perhaps the most typical of their present-day products is the pagàra or double lined Carib pannier. These are made by a number of the men, some of whom show almost as much skill as their more primitive cousins of the Guiana mainland. The commonest variety is the rectangular "toilet-basket" measuring about twenty-four by thirty by twenty-four inches, with lid of almost the same depth as the body and very slightly larger in order to fit over the latter. Other forms are the "satchel," a flat handbag-shaped affair some ten inches long by two inches wide by eighteen inches deep. The sides taper slightly toward the top, which is some two inches shorter than the base. The "grip" is a modern adaptation introduced to suit the tastes of town-negro and tourists. All these baskets are made in the same manner, and each consists of four pieces: a body and a lid, plaited in a more or less complicated design with strands of two or three colors, duplicated by linings of the same material in close plain white weave. Between

[1] The Island Caribs of Dominica, B. W. I. (American Anthropologist, Vol. 37, pp. 265–72, 1935).

the outside basket (body and lid alike) and the lining is placed an overlapping layer of cachibou leaves to ensure watertightness.

Hébichets or cassava-sifters, matùtu or Carib tables (a sort of low tabouret), and màtapi or cassava-squeezers (the typical stocking-like affair known here as "couleuvre") are also made yet by a few of the older men.

All of the above are made from the stem of the luàrouman. This reed-like plant (the itirite of the Guiana Indians ?) is found in the high woods, cut to a length of about eight feet, and brought back in big bundles to the Reserve. Here it is dried in the sun until it acquires a reddish-brown tinge, or steeped in "mud-holes" to dye it black. The stems are then prepared for use by splitting them in four and removing the pith with the aid of a knife. The white inner side of the strands is usually placed uppermost in either the warp or the weft of most products.

The women weave simple round wicker baskets in a variety of shapes and sizes out of a liana called mibi. The strands are often dyed yellow and mauve with the fruit and leaves respectively of plants known locally as "saffron" and "tan."

Other products are the catàoli or shoulder-carryall, made here of lattanier; kali, a kind of fish-pot used for catching flying-fish, and the sleeping-mat, no longer common, made from the ribs of balizier leaves.

Roucou (anatto) and cotton still abound in the reserve, but the women of today can neither dye nor spin, and the latter is now mainly used for caulking defective canoes.

The men still make their fishing-lines (nets are not used) in the old way out of what they call la pitte (kùrawa or silk-grass). A length of bush-rope (tressed strips of mahoe-bark) is attached to the fork of a tree and a slip-knot passed round the leaf, which is then folded over a thick round stick held in the hand. By an even pull, the leaf is made to pass through the knot, exposing the long fibre and leaving the waste matter on the rope. As the process continues the stick is twisted and the disengaged fibre wound around it. The latter, when dried and bleached, is spun into twine by rolling it on the naked thigh in a particular manner.

The tree *Carapa guiensis* is still found in the Dominica forests. Its fruit was formerly used to make the oil Caribs put on their hair and, mixed with roucou, on their bodies. Curiously, its name (carapat oil) is now given to the oil of the palma christi which the women still extract in a primitive way for anointing their hair. The men sometimes make shark oil for use in primitive lamps as a substitute for kerosene. The flambeau, now seldom seen, is a torch made from strips of a wood known as bois chandelle bound up in dried leaves together with lumps of white gum of the gommier tree. Such a

torch burns steadily for six or seven hours, and gives off a very pleasant aroma.

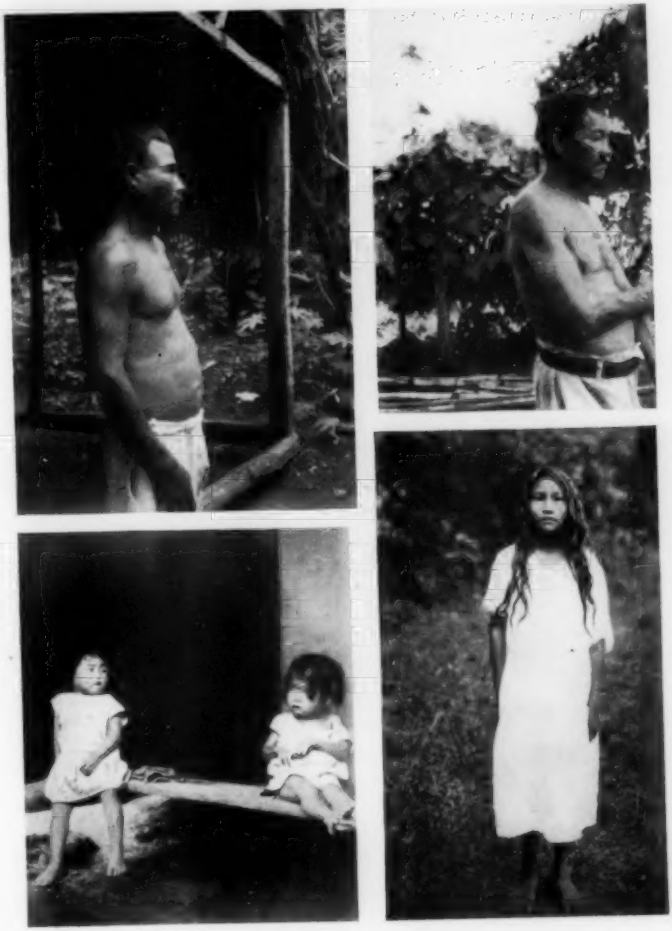
A few surviving customs are worth noting. Though not altogether confined to the Carib population today, they are, at any rate of purely Indian origin.

At least two fish-poisons are known and commonly used in river-pools whenever the sea is too rough for fishing. That known as nivrage (from the French "énivrer") is prepared by crushing the leaves of a shrub fairly common in the Reserve and probably identical with Carib kunàmi. The other and more powerful comes from the fruit of a tree called babarà. It may even, on occasion, be used in rock-pools of seawater.

Sorcery is not unknown, but has fallen into disrepute and become inextricably mixed with imported African and pseudo-Christian varieties. At the present time it is concerned chiefly with petty jealousies, love spells, the recovery of lost objects, and the like. The word piaïe is used throughout Dominica in the sense of "spell" or "charm," whereas obeah (supposed to be African) and quimbois (said to come from French "tiens bois") serve indifferently to denote the science and practice of sorcery. It is curious, though perhaps a coincidence, that these last two words so nearly resemble the Island Carib words (women's and men's languages respectively) for "spirit," "understanding:" ôpoya and akàmbué.

Some Carib are reluctant to tell their names to strangers—or at least they retain a private name they will divulge only to their family. Though Carib names have long been dropped for "Christian" names (usually incomprehensible corruptions of French names), family surnames are not used. Thus, a man whose father was John Jules may call himself Norbert John, and his son Siméon Norbert. This practice—in a country where most families already consist of "mine," "thine," and "ours"—makes it exceedingly difficult to trace genealogies. "Outside children" always remain with the mother, whether or not she has more legitimate responsibilities. A newly married girl brings her husband back to *her* parents' home until such time as he can build a house himself; she never goes to live with *his* parents.

Death and sickness are caused, not by disease, but by evil spirits in search of mischief. An old Carib friend once told me in confidence of the "death-spirits," against whom neither priest nor doctor could avail. His last words before he died—of a pleurisy contracted through wearing wet clothes—were: Yo ka pren' la vie au soè'-à, "Tonight they are taking life." Nine days after a death, a sort of second wake is held in the house of the deceased "pour faire la prière." It begins with the singing of French hymns by the women, becomes—refreshments helping—quite a merry party, and



Island Carib types, Dominica, British West Indies.

Island Carib types, Dominica, British West Indies.

ends around daybreak with games, conundrums (to tirer contes in patois), and ring-dances. All the priests I asked denied that this ceremony had any Christian origin. A Carib finally told me that the object of this prayer-evening, frowned on by the church, is to rid the house of any death-spirits that may still be lurking there—a sort of spiritual fumigation!

In writing the following supplementary vocabulary I have used a different orthography from that adopted in the previous article, as more suited to the genius of the language.[2]

People

I'haru	woman
n-iani	my wife

Animals, Birds, Fish

wayàmaka	iguana lizard
wanàçaé	tête-chien snake
héhwé[3]	snake (generic)
kàturi	screech-owl
kùrapiào*	small song-bird (patois: merle)
çéçé*	small grass-bird
çicéru*	Dominica or Imperial parrot
bàlau*	small common fish
katàru	edible turtle (caret)
kùliru*	"Jack," small fish
haçùlali	fish (vive)

[2] In general, the vowels have been given their Latin values, while the consonants are as in English. Some modifications have, however, been necessary.

au, eu, aĭ are pronounced in two syllables.

ao is almost like English "how," ai almost like "I."

ĕ is the indefinite vowel in "mother."

ué, ui, ua replace wé, etc., where that sound results from an inflected u sound.

The tilde is used as in Portuguese to denote a nasalization of the vowel, in the same way as in French n final or before a consonant.

Accents denote stress, not quality.

ç is a sound intermediate between "ss" and "ch" (French).

hw is a strongly aspirated "wh" sound.

gh and kh are soft though distinct gutterals.

p, k, and t are softened so as to become confused with b, g, and d. There is similar confusion between long ô and u, ç and ch, l and r.

n and r seem to be sometimes aspirated.

Asterisks denote that the word is now used in Créole patois.

Where the English for a Carib word is unknown, its patois equivalent is given in parentheses.

[3] Used in patois in the expression hĕhwĕ-congre, the conger-eel.

hànnao	fish (bourse)
hépi	"parrot-fish"
makùba	river mud-fish (têtard)
mōbēi*	fish, cardinal
çìbuli*	fish (nègre) of dark color
tìtiri*	fry of certain fish caught in sheets at river-mouths
wàtĕribi	fish, variety of snapper (tanche)
ìçulu	fresh water crayfish

Elements

paràmna	sea
konôbu	rain
karàbali	the breeze or trade-wind
iwàyuhurù	storm

Various

éçùbaraté	knife or cultlass
hébichet*	cassava-sifter
kàbuiya*	noose
kàli*	kind of fish-pot of cotton or bamboo
kanàri*	big earthenware cook-pot
katàoli[4]	shoulder container-basket
kuriàla[4]	dug-out canoe
matùtu*	Carib table (small basket-work tabouret)
muinā	palm-thatch dwelling

Native Trees whose Carib names have remained in general use in Dominica. bàlata, pàpai (papaya), kàrapa (crabwood tree), kàchibu, kwàchin, ikàku (corrupted to z'ikak), luàrumā, mibi, mōbeī, çima-ùba, wawa, yàttaghu.

Carib Place Names in Reserve, forgotten by all but oldest inhabitants. Ataori, Akàoyu (Raymond River), Kùçaràwa (Ravine Gros Rochers), Kuçàrakwa, Kuanarà (Ravine Viville), Wàiçima, Kuérek, Îçulukàti (Crayfish River), Bàraiçi (Bataca), Wàinika, Kuària (Big River, now a dried bed forming northern boundary), Wàraka (district between the foregoing and River Pegoua).

Phrases and Verb-Forms

bíriháli arhyàbu rícha	lightning streaks the night
kàïmā w-atàbura tùnā	let us go and draw water

[4] Heard once in patois, but very unusual.

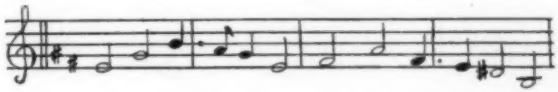
tabù-bùka tùnâ	go and draw water!
ènni tàbu nâku	I'm going to sleep (lit., close my eyes)
ènn ay-àtakwa	here is for you to drink!
àla kuàbutu	I want (*or* let's have) a drink!
ènn kàĭ amulài	Here's how! (lit., here's let us appease)
aohwééli	he is dead
abínaka	to dance
chírakwa	to split, pierce

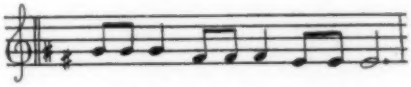
And some corrected forms of phrases given in the earlier article under Nos. 7, 8, 10, 12, and 14:

rùbài yété nùni—ni-lamâhàtina	Give here food—I am hungry
mékeru k'hiînçi	The negro smells!
makràbuhátina	I am thirsty
yùruk'-hào kàtu kàrrahí	Are you well?
rùbài pàipaté þùman iùtti kômulàkha	Go and get me a smoke!

nùni may be Breton's "no-i, pittance;" kàrrahi probably has to do with his "karrĕní, strength;" paipaté is, I think, undoubtedly his "baibatí, go thou;" pùman his "bóman, from thee" (a form used in asking); iùtti, "a portion;" kômulàkha, "to smoke."

The following song was taught me by Chief Jolly John, who learnt it from Tanaze, now dead.



Tù-kim màkuàruú! Tù-kim màkuàruú!
They make war, O lazy one! They make war, O lazy one!

Bínari tànura mannĕr' imu
Unwilling thou to flee, thou my son

Kà-ĭ-mĕ bíçikàni kaĭ w-aku! (repeat)
Come let us take the lead! Come let us awake!

As some of the words may be corrupt, I cannot vouch for the accuracy of the translation; for although words and air are known to several living Caribs, the meaning has been forgotten!

The remaining Indians of Dominica are today the only direct descendants of the two groups first encountered by Columbus—the Island Arawak and the Island Carib. They have, within the last seventy years, lost practically the whole of their language, tradition, and culture, and the greater part of their customs and individual way of living. This falling-off is not due to lack of stamina in them—the Dominicans having outlived by some two hundred years their cousins of the other islands—but is the outcome of a long, persistent, and stupid policy of interference and absorbtion that has remained unchanged since the days when the Indians were a real menace to white settlers of their islands. If something to preserve them is not undertaken soon—and it is doubtful whether that would still be possible—they in their turn will have disappeared in another generation. If that must be, it is high time to put on record in a more scientific way than has here been possible what yet may be ascertained of their physical characteristics, their customs, and their crafts; to etymologize the old placenames; and to make a representative collection of the ancient weapons and implements with which the soil of the island abounds.

EASTON, MARYLAND

AN URN FROM THE RIO AGUARICO, EASTERN ECUADOR

By JOHN GILLIN

THE urn pictured herewith was collected by the writer in the course of an ethnological reconnaissance on the Rio Aguarico in eastern Ecuador in March, 1935, on behalf of the Peabody Museum of Harvard University. The specimen was presented to me by two Aguarico Indians who happened to share our camping place on a playa one night. These men informed me that they had found the urn during the preceding day while hunting for turtle eggs. It was protruding from the bank of a right tributary of the Aguarico, apparently having been exposed by erosion of the creek bank during recent high water. Inasmuch as none of the Indians living in the vicinity make or use such articles at the present time, I went next morning to the spot where the specimen was alleged to have been found. A hole was found in the side of a mud bank with evidences of considerable digging by sticks and cutlasses. The writer is convinced that the urn was found by the Indians in situ, four feet six inches deep in alluvial, gray clay. The surface of the ground was covered to a depth of about nine inches with vegetable mould and a matting of roots from the forest growing there. Two trees more than fifty feet high were found growing within a radius of fifteen feet inland of the spot where the urn was lying. We had no tools for digging, but a day spent in working with cutlasses revealed several sherds of gray, undecorated pottery and a hearth of charcoal at a depth of five feet nine inches from the surface. The creek in question, which is nameless, is a right tributary of the Aguarico which joins the latter an estimated forty-five miles above its mouth. The site is located on the left bank of the creek about one and a half miles above its mouth. The country is at present uninhabited by Indians for a distance of forty miles upstream, although about six miles downstream from its mouth Señor Abraham Duque's small plantation is situated, the most upstream outpost of white settlement.

Measurements: diameter at lip, 14¾ inches; diameter at bulge, 19 inches; diameter at bottom, 6 inches; total height, 15¾ inches; width of decorative band, 10 inches; circumference at lip, 46⅛ inches; circumference at bulge, 57¼ inches; circumference at bottom, 19 inches.

The color of the exterior background surface is brownish red and the design has been applied with white paint. Over the whole a gum glaze seems to have been applied. The surface of the interior is grayish, with a few pinkish marks of firing barely discernible. Since there are no marks of smoke or indications that the urn was used over a fire after manufacture, the conclusion that it was a ceremonial container seems valid.

The design is interesting, although the writer has been unable to identify it positively either in detail or in style with any previously published archaeological or ethnological material from the Amazon basin. Apparently two conventionalized faces are represented, the eyes of which can be distinguished by two oblongs placed side by side, a motive which occurs twice. Suggestive analogies are found in pictures of funeral urns from the Island of Marajó, published by Netto.[1] The design may be said to have a "generally Amazonian feeling" without corresponding in many details to designs so far published from other sites in the area. The general treatment of broad lines contrasted with very light ones, of straight lines, sharp curves, and sharp angles is also suggested by an urn of anthropomorphic shape reported by Uhle from the Rio Napo, found at a point twenty leagues above the mouth of the Aguarico.[2] Faint analogies may also be seen in some of the decorative art of certain present-day Indians of the upper Marañon and lower Ucayali, reported by Tessmann.[3]

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[1] L. Netto, Investigacões sobre a archeologia brazileira (Archivos do Museu Nacional do Rio de Janeiro, Vol. 6, pp. 261 ff.). See particularly Plate 19, Fig. 4, p. 309, and figures on pages 339, 345, and 468.

[2] Max Uhle, Los principios de la civilización en la sierra peruana (Boletin de la Academia Nacional de Historia, Vol. 1, Quito, 1920); also reported in E. Nordenskiöld, L'archéologie du bassin de l'Amazone (Paris, 1930).

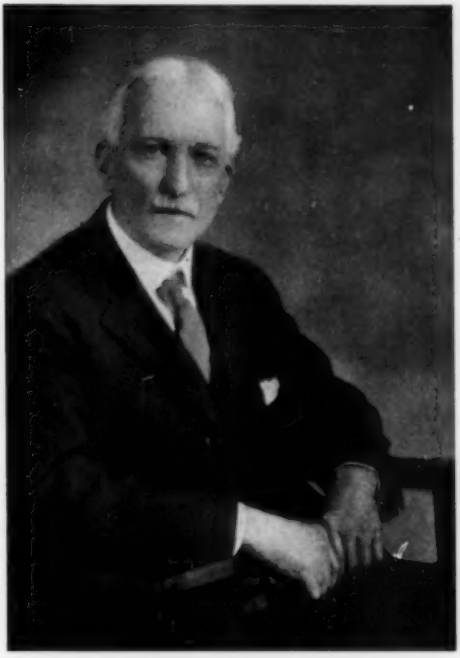
[3] G. Tessmann, Indianer Nord-ost Perus (Berlin, 1930): drinking cups of the Panabo, Plate 6, Nos. 1, 2, 3–11, especially Nos. 1 and 2; pottery vessel of the Kokama, Plate 5.

Urn from the Rio Aguarico, eastern Ecuador. BELOW, The developed design.

WALTER HOUGH: AN APPRECIATION

By NEIL M. JUDD

WALTER HOUGH, head curator of the department of anthropology at the United States National Museum, and a founder of the American Anthropological Association, died suddenly of heart failure at his home in Washington, D. C., on Friday, September 20, 1935.



WALTER HOUGH

Doctor Hough was born in Morgantown, West Virginia, April 23, 1859, the son of Lycurgus S. and Anna Fairchild Hough. He received his schooling at the Morgantown Academy and the Preparatory School of West Virginia Agricultural College; from West Virginia University he obtained his B.A. degree in 1883, his M.A. in 1884, and his Ph.D. in 1894. Following graduation, he taught for a year in a boys' school at Alton, Illinois, and

then began his professional career by accepting appointment to a minor position in the division of ethnology at the National Museum.

If we may judge correctly from a few autobiographical notes written in his seventy-fifth year, Walter Hough merely followed a natural inclination into the field that became his life's work. As a boy at his mother's knee, he was thrilled by the accounts she read to him of explorations in Palestine, the Near East, and elsewhere throughout the world.

> I was fascinated [he writes] with the story of antiquity but it was sometime before I realized that near our home town there were traces of antiquity in the former camps of our Indians. Then I located and collected from the surface the various arrowpoints, worked stones, etc., which began my archeological collection.

Like every other of its kind, this boyhood collection was not restricted to a single theme. Young Walter was fertile minded; he was energetic and possessed the average boy's insatiable curiosity. The rugged valley of the Monongahela and the wooded hills on either side provided endless mysteries and hidden corners for exploration. His father's library, obviously an exceptional one for the time and place, partially satisfied the youth's desire for information and it also suggested additional subjects for out-of-school study, such as botany and the other branches of natural history. Thus the collection which had its origin in a pocketful of arrowheads came to include a sampling of the flora, fauna, and fossils from the Carboniferous of the Morgantown district.

The interest awakened by the latter discoveries appears to have been the dominant one throughout Hough's preparatory and college days. He devoted more attention to geology than to any other subject in the curriculum. In his spare time he collected fossils for Dr J. J. Stevenson, of New York, then a recognized authority on the geology of the coal measures of Pennsylvania and West Virginia, and received fossils from other areas in exchange. During this same impressionable period Hough came also under the stimulating influence both of William Maury Fontaine, long-time professor of geology at the University of Virginia, and I. C. White, state geologist and foremost authority of his time on the economic resources of West Virginia. Although Hough's enthusiasm for geology and paleontology was soon to be supplanted by a deeper interest in primitive peoples and the rise of civilization in various parts of the world, he treasured his Carboniferous plants and invertebrates until 1897 when they were presented to the National Museum.

As a copyist in the division of ethnology, then under the curatorship of Dr Otis T. Mason, Hough joined the Museum staff in January, 1886. A

year later he was appointed Aid in the same division and in October, 1894, Assistant Curator. These were merely the first of a succession of appointments and temporary assignments that were eventually to lead, however slowly, to the highest office within the department of anthropology. There can be but little doubt, however, that throughout this early period Hough's ingrained studiousness attracted the attention of, and was encouraged by, Professor Mason whose passion for accuracy and whose contagious enthusiasm for ethnological research were well known. At this time the division staff was wholly occupied with the cataloguing of extensive collections presented to the United States by foreign governments and other exhibitors at the Philadelphia Centennial Exposition of 1876—collections which, of necessity, had been placed in storage pending completion of the museum building in 1881. Among these new accessions Hough found themes for a number of short papers each year and the inspiration for endless reading. His amazing memory for what he read never ceased to be the envy and admiration of his colleagues.

Following the death of Professor Mason on November 5, 1908, Assistant Curator Hough was designated both acting Curator of the division of ethnology and acting Head Curator of the department of anthropology. On January 1, 1910, he was appointed Curator of Ethnology and ten years later, upon the resignation of Prof William H. Holmes, he was again placed temporarily in charge of the department. Responsibilities may multiply but reward comes slowly in Washington! Not until March 1, 1923, did Doctor Hough actually receive the title and emoluments of Head Curator of Anthropology, an office he continued to occupy with distinction, while remaining at least nominal Curator of Ethnology, until the end. Indeed, chiefly through his extraordinary fund of information, he had become so indispensable to the Museum that he was twice continued in office for two-year periods beyond the customary age for retirement of Federal employees before an Executive order of June 30, 1932 exempted him from compulsory retirement. He had been in the public service for fifty years, lacking only three months, when his career was brought to a sudden close September 20, 1935, after a fortnight's rest from the effects of a rather strenuous summer in Washington and on the very eve of his expected return to duty.

By far the greater portion of Doctor Hough's half century with the National Museum was spent in the laboratory. His was the chore, first of cataloguing specimens, then of preparing data for the copyists, next of supervising these and other routine tasks. He joined the staff at the height of the exposition era, when nations, states, and cities were vying with each other in commemorating historical events of greater or lesser moment. For

these expositions the Congress usually provided a building and authority for the commission in charge to draw heavily upon the national collections for exhibition material. Casual inspection of its annual reports indicates that the Museum participated in no fewer than sixteen expositions between 1892 and 1926, and in the preparation of exhibits for these Doctor Hough had an active part. He attended the Columbian Historical Exposition at Madrid in 1892 both as a representative of the Smithsonian Institution and as a member of the United States commission, helped install the Museum exhibits, and remained in charge of them. In recognition of his efforts on this occasion, the Queen Regent made Doctor Hough a knight of the Royal Order of Ysabel la Católica. Certificates, diplomas, and medals evidence his contribution to other expositions, national and international.

So far as the writer can learn, Doctor Hough's first professional fieldwork was in New Mexico and Arizona, as assistant to the late Dr J. Walter Fewkes during the summer of 1896. Three years later he accompanied Dr J. N. Rose on an ethno-botanical expedition to Mexico. Subsequently, he returned to Arizona and New Mexico a number of times in connection with his own researches, both ethnological and archaeological, the nature and extent of which will be apparent from his bibliography.

Although his contributions to the literature of the Southwest well merit specific reference, Doctor Hough was perhaps best known among anthropologists for his studies of fire as an agent in human culture. Beginning with a modest article on the "Distribution of the Fire-Syringe," published in 1888 in the first volume of the AMERICAN ANTHROPOLOGIST, his bibliography includes no fewer than twenty-one items on fire, heating and lighting apparatus, etc.[1] To the 148 titles listed, there should rightfully be added several thousand letters mailed in answer to inquiries addressed to the Museum, for these often entailed considerable research and invariably went thoroughly into the subject raised even though this latter was a mere passing thought with the original correspondent.

But the wide range of his interests is only partially illustrated by his published works. He was an authority on old English, French, Italian, and American china, on old lace, on violins and pianos. His interest in violins and pianos came naturally from an inherent love of music (although without musical training, he often sat down at the piano, even in later years, to play by ear selections he had heard at afternoon concerts) while his interest in china was awakened by an early study of aboriginal American pottery,

[1] The number was erroneously given as eighteen in Science, Vol. 82, pp. 541–42, December 6, 1935.

the methods of its manufacture, and his efforts, in 1895–96, to reproduce pieces in kind. Few of his friends knew that Doctor Hough's two hobbies were wood carving and painting; that several very creditable Indian portraits, modeled by him in 1889, still hang in his home. Few knew that he possessed more than passing knowledge of the history of art and the distinguishing characteristics of the old masters. So broad was his reading and so retentive his memory, that he frequently astonished his subordinates by a remarkable ability immediately to name the culture and place of origin of almost any curio brought in for identification by chance visitors.

Doctor Hough was a founder of the American Anthropological Association (president in 1924) and a member of the American Association for the Advancement of Science (Member, 1889; Fellow, 1890; vice-president of Section H, 1904); the Anthropological Society of Washington (general secretary, 1906–07; president, 1908–09); the Washington Academy of Sciences; Archaeological Society of Washington; American Museums Association; Phi Beta Kappa (W. Va., 1914); the International Society of American Artists; the Washington Water Color Club; and the Sons of the American Revolution. He was a corresponding member of the Société d'Anthropologie de Paris and the Svenska Sällskapet för Antropologi och Geografi. He represented the Smithsonian Institution at four sessions of the International Congress of Americanists: at Huelva, in 1892; at Quebec, in 1906; at Rio de Janeiro, in 1922; and at New York City, in 1928.

Among his neighbors, his co-workers, and the thousands who came to his desk at the Museum, Doctor Hough exerted an unique influence. A more considerate, more helpful man never lived. He was the personification of kindness. Sympathetic at all times, of rare understanding and unfailing courtesy, he was a magnet that drew people to him with their little troubles and their immature ideas regarding aboriginal peoples the world over. The charm with which he received such visitors, the gentle, convincing manner in which he sought to present accepted scientific facts without open contradiction endeared him to all. He would exclaim with admiration over bits of arrowheads and pottery fragments gleaned from the hills about Washington by successive groups of school boys and proudly brought in for his inspection—fragments that invariably reminded him of those he had himself found in some far-away valley and thus provided opportunity for an informal lecture on the tribes of other areas. As one of his many admirers has written: "He was the symbol of everything that was fine and noble, kindly and good."

He married Myrtle Zuck, of Holbrook, Arizona, on December 29, 1897. Mrs Hough, two sons and a daughter, and seven grandchildren survive him.

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Exploration in a Great Sacred Cave in Eastern Arizona (Art and Archæology, Vol. 28, pp. 117–25, Washington).
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1930 The Bison as a Factor in Ancient American Culture History (Scientific Monthly, Vol. 30, pp. 315–19).
Exploration of Ruins in the White Mountain Apache Indian Reservation, Arizona (Proceedings, U. S. National Museum, Vol. 78, Art. 13, No. 2856, pp. 1–21).
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A Chiriguano Canteen (American Anthropologist, Vol. 32, pp. 187–88).
The Semi-Centennial of the Anthropological Society of Washington (American Anthropologist, Vol. 32, pp. 189–98).

1931 Jesse Walter Fewkes (American Anthropologist, Vol. 33, pp. 92–97).
The Indians of the District of Columbia (Scientific Monthly, Vol. 32, pp. 537–39).
Material Culture and the Racial Matrix (Scientific Monthly, Vol. 33, pp. 164–67).
Ancient Seating Furniture in the Collections of the United States National Museum (Annual Report, Smithsonian Institution, 1930 [1931], pp. 511–18).
Tribal Communications (Commercial Standards Monthly, Vol. 8, p. 188, Washington).
Report on the Department of Anthropology (Annual Report, U. S. National Museum, 1931, pp. 47–56).

1932 The Buffalo Motive in Middle Celebes Decorative Design (Proceedings, U. S. National Museum, Vol. 79, Art. 29, No. 2895, pp. 1–8).
A Cache of Basket Maker Baskets from New Mexico (Proceedings, U. S. National Museum, Vol. 81, Art. 10, No. 2933, pp. 1–3).
The Patient Pimas (Home Geographic Monthly, Vol. 1, pp. 7–12, Worcester, Mass.).
Human Postures and the Beginnings of Seating Furniture (Scientific Monthly, Vol. 35, pp. 328–32).
Decorative Designs on Elden Pueblo Pottery, Flagstaff, Arizona (Proceedings, U. S. National Museum, Vol. 81, Art. 7, No. 2930, pp. 1–11).
Fire and Human Civilization (Proceedings, American Philosophical Society, Vol. 71, pp. 403–06).
Biographical Memoir of Jesse Walter Fewkes, 1850–1930 (National Academy of Sciences, Vol. 15, Memoir 9, pp. 261–83).
Seminoles of the Florida Swamps (Home Geographic Monthly, Vol. 2, pp. 7–12, Worcester, Mass.).
Report on the Department of Anthropology (Annual Report, U. S. National Museum, 1932, pp. 35–43).

1933 William Henry Holmes (Science, Vol. 77, pp. 482–83).
The Origin and Development of Metrics (American Anthropologist, Vol. 35, pp. 443–50).
William Henry Holmes (American Anthropologist, Vol. 35, pp. 752–64).
Northwest Coast Spliced Harpoon Shafts (American Anthropologist, Vol. 35, p. 204).

1934 Investigations on Ancient Canals in Southern Arizona (Explorations and Field-Work of the Smithsonian Institution in 1933 [1934], pp. 32–34).

The Domestication of Animals (Scientific Monthly, Vol. 39, pp. 144–50).

Dr Berthold Laufer: An Appreciation (Scientific Monthly, Vol. 39, pp. 478–80).

1935 Report on the Department of Anthropology (Annual Report, U. S. National Museum 1933 [1935], pp. 87–93).

Report on the Department of Anthropology (Annual Report, U. S. National Museum, 1934 [1935], pp. 17–25).

Also thirty-one biographies for the Dictionary of American Biography; numerous reviews, notes, obituaries, and reports.

UNITED STATES NATIONAL MUSEUM
WASHINGTON, D. C.

REPORTS

ANTHROPOLOGICAL SOCIETY OF WASHINGTON

The Anthropological Society of Washington at its annual meeting held on January 21, 1936, elected the following officers for the ensuing year: *President*, Frank H. H. Roberts, Jr.; *Vice-President*, George S. Duncan; *Secretary*, Frank M. Setzler; *Treasurer*, T. Dale Stewart; *Vice-President of the Washington Academy of Sciences*, Frank H. H. Roberts, Jr.; *Members of the Board of Managers*, C. W. Bishop, D. I. Bushnell, Jr., H. W. Krieger, J. H. Steward, and W. D. Strong.

A report of the membership and activities of the Society since the annual meeting held on January 15, 1935, follows:

Membership:

Life members	3
Active members	37
Associate members	12
Honorary members	18
Corresponding members	18
Total	88

Deceased:

Active members	2
Associate members	1

Resigned or Transferred:

Active members	4
Associate members	2
Total	9

New Members:

Active Members	3
Associate members	2
Total	5

The Society lost one of its most devoted and active members through the death of Dr Walter Hough, Head Curator, Department of Anthropology, U. S. National Museum, on September 20, 1935. Another active member lost through death was Mr Charles L. Sturtevant, January 11, 1935. On August 31, 1935, the Society lost through death an associate member, Mrs H. L. Ickes.

Four active and two associate members resigned or were transferred from our Society: Dr Biren Bonnerjea, Mr R. A. Elmquist, Dr J. S. Wall, Mr W. M. Walker, Miss J. J. Glass, Mr Marcus Goldstein.

Members elected during the year were: Mrs H. L. Ickes, Mr Verne E. Chatelain, Mr C. I. Kephart, Mrs Elna N. Smith, and Miss Emma Reh.

The financial statement (Treasurer's report) is as follows:

Funds invested in Perpetual Building Ass'n		$1247.05
21 shares Washington Sanitary Improvement Co., par value $10 per share		210.00
2 shares Washington Sanitary Housing Co., par value $100 per share		200.00
Cash in bank		255.03
Total		$1902.08
Bills outstanding:		
To American Anthropological Association	$75.00	
To printer	3.75	
To Secretary	1.24	
To Treasurer	1.63	
Total	$81.62	81.62
Net balance		$1820.46

Papers presented before the regular meetings of the Society were as follows:

January 15, 1935, 656th regular meeting, A Folsom Camp Site and Workshop in Northern Colorado, by Dr Frank H. H. Roberts, Jr., Archeologist, Bureau of American Ethnology.

February 19, 1935, 657th regular meeting, Recent Identifications of Points on the Route of Hernando De Soto, by Dr J. R. Swanton, Ethnologist, Bureau of American Ethnology.

March 19, 1935, 658th regular meeting, Recent Archaeological Investigations in Florida, by M. W. Stirling, Chief, Bureau of American Ethnology.

April 16, 1935, 659th regular meeting, Curses in Ancient Egypt, Babylonia, and Palestine, by Dr George S. Duncan, Professor of Egyptology and Assyriology at American University.

October 15, 1935, 660th regular meeting, Report on Further Investigations at a Folsom Site in Northern Colorado, by Dr F. H. H. Roberts, Jr., Archeologist, Bureau of American Ethnology.

November 19, 1935, 661st regular meeting, An Unknown African Negro Civilization, by Dr Hans Himmelheber, of Karlsruhe, Baden, Germany.

December 17, 1935, 662nd regular meeting, A Few Archaeological Sites in Mexico, by Neil M. Judd, Curator of Archeology, U. S. National Museum.

All regular meetings of the Society were held in Room 43 of the U. S. National Museum.

F. M. SETZLER, *Secretary*

AMERICAN ETHNOLOGICAL SOCIETY

REPORT OF THE SECRETARY-TREASURER

The annual meeting of the American Ethnological Society was held January 27, 1936 at the American Museum of Natural History, New York City. Summary

statements of activities and finances were presented to the membership, officers were reelected, and new members were approved. The following reports were referred to the Executive Council for acceptance.

Report of the Secretary

Membership:

Increase in total membership and changes in the composition of the membership of the American Ethnological Society may be summarized in the records for 1934, 1935, and 1936:

1934—Life members 13, members 50, fellows 118, affiliates 6.....	187
1935—Life members 13, members 76, fellows 119, affiliates 5.....	213
1936—Life members 14, members 95, fellows 121, affiliates 3.....	233

The figures for 1936 are the present status of membership (February 1936).

The increase in total membership is the result of a continuing membership drive. Change in composition has resulted from the addition of many new members, and from many voluntary shifts of status from fellow to member. As a result, it has been possible to lower the dues rate for members to $9.00 for the current year.

The Society lost through death in 1935 Mr George C. Fraser, a member since 1920.

Meetings:

At the regular meetings of the American Ethnological Society, which were held on the fourth Monday of each month at the American Museum of Natural History in conjunction with meetings of the Section in Anthropology of the New York Academy of Sciences, the following programs were presented:

February 25, 1935. Suicidal reactions and culture. Dr A. A. Brill.

March 25, 1935. Ideas about human nature (Iatmul tribe, Sepik River, New Guinea). Dr Gregory Bateson.

April 22, 1935. The principles of clanship in human society. Dr Paul Kirchoff.

May 27, 1935. Mountain chant of the Navaho. Mrs Laura A. Armer.

October 28, 1935. Social life of Apache tribes. Dr Morris E. Opler.

November 25, 1935. The present status of the Folsom problem in American archaeology. Dr Frank H. H. Roberts, Jr.

January 27, 1936. Unknown peoples of the interior highlands of New Guinea. Mr Michael J. Leahy.

Publications:

Cree Texts, by Leonard Bloomfield, was distributed during the year as the 1934 volume (Volume 16 of the Publications). The 1935 volume, Caddoan Texts, by Gene Weltfish (Volume 17 of the Publications) is in press to be issued shortly.

Sales of the Publications, though not as extensive as the year before, continued high as a result of continuing circularization. Total sales to December 20, 1935 amounted to 214 volumes, of which 57 represented the distribution of Volume 16

to subscribers. This subscription distribution of 57 compares with 26 at the time of the issuance of Volume 15. Sales of sets and additional subscribers make the probable pre-publication sale of further issues approximately 70.

Respectfully submitted,
ALEXANDER LESSER, *Secretary*

REPORT OF THE NOMINATING COMMITTEE

On recommendation of the nominating committee, a motion was offered and approved by the members, reelecting the present officers and directors for 1936.

President: Dr Gladys Reichard, Columbia University

Vice-Presidents: Dr Elsie Clews Parsons, Harrison, New York; Dr Bruno Oetteking, Columbia University

Secretary-Treasurer: Dr Alexander Lesser, Columbia University

Editor: Dr Franz Boas, Columbia University

Directors: Dr Clark Wissler, American Museum of Natural History; Mr Clarence L. Hay, American Museum of Natural History; Dr Ruth Benedict, Columbia University

REPORT OF THE TREASURER

January 23, 1935 to January 22, 1936

CURRENT FUND

On deposit, Corn Exchange Bank, January 23, 1935		$2477.75	
Cash on hand, January 23, 1935		4.65	
			$2482.40
Receipts:			
Dues, 1932–34, Fellows and members	$ 59.90		
1935, Fellows and members	1063.30		
Affiliates	3.00		
Life membership	100.00		
1936, Fellows and members	482.00		
		1708.20	
Interest, N.Y. Mortgage bonds	45.62		
Bonds of Mortbon Corporation	31.87		
U. S. Liberty bond at expiration	10.62		
Accrued interest, Bowery account	24.02		
		112.13	
Cash from sale of U. S. Liberty bond	500.00		
Cash in Mortbon reorganization	450.00		
		950.00	

Gross sale of publications, Stechert	675.40			
Overpayment, credited Stechert	141.45			
		816.85		
			3587.18	
				$6069.58

Expenditures:

Amer. Anthrop. Assn., 1935 subscriptions		$ 969.00	
J. J. Augustin, printing Publications, Vol. 16		1055.32	
Permanent funds, deposited in Bowery Savings Bank		1050.00	
G. E. Stechert, charges as agent		207.34	
Commissions, 1934	$ 23.76		
Commissions, 1935	139.78		
Shipping, Vol. 16	41.50		
Mailing charges	2.30		
Meetings of American Ethnological Society		39.31	
Printing, stationery, and circulars		90.63	
Postage		117.03	
Secretarial assistance		96.60	
Brill, for Publications, Vol. 7, Part 1		2.72	
Safety deposit box rent		6.60	
Bank charges, collections		.98	
Returned checks and coupons		31.25	
Supplies		3.46	
Refund, miscellaneous		1.65	
1934, uncollected check, drawn		7.50	
			$3679.39
Balance, Corn Exchange Bk., January 22, 1936		1638.16	
Cash on hand, January 22, 1936		2.03	
Current funds, Bowery Savings Bank		750.00	
			2390.19
			$6069.58

PERMANENT FUND

Bonds of N.Y. Mortbon Corporation	$2550.00
Permanent funds, Bowery Savings Bank	1050.00
	$3600.00

Remarks on the Treasurer's Report:

The balance sheet shows a favorable balance in Society funds. This is traceable to increase in membership, improvement in composition of membership, and sales

of the publications. Expenditures involved in circularizing and mailing in connection with drives for members and sale of publications amount to about $240.00. Results from this expenditure include a net gain of 43 members to date of this report, an approximate doubling of the number of members, a gross sale of $418.90 of publications (apart from distribution of Volume 16), and a substantial increase in the subscription list for future issues of the publications.

Important changes in the composition of our permanent funds have occurred as a result of the calling of our Liberty Loan bond, and a reorganization of the New York Mortgage Company, with its assets and liabilities taken over by the Mortbon Corporation. In the latter reorganization, the Society has received 2½ percent bonds to 85 percent of the face value of the bonds formerly held of the New York Mortgage Company, and 15 percent in a cash payment. These cash funds, along with proceeds of the sale of the Liberty Bond and the dues on one new life membership, have been deposited in the Bowery Savings Bank. While our permanent funds are now in a very liquid condition, our income from interests has been substantially reduced, since savings bank interest rates are low, and our bonds now draw 2½ percent as against the 5 percent rate of the bonds we formerly held.

Respectfully submitted,
ALEXANDER LESSER, *Treasurer*
Audited and approved by RUTH BUNZEL, *Auditor*

BOOK REVIEWS

NORTH AND SOUTH AMERICA

An Introduction to Nebraska Archeology. WILLIAM DUNCAN STRONG. (Smithsonian Miscellaneous Collections, Vol. 93, No. 10, Washington, 1935.)

In Nebraska an archaeologist emerges from the trenches with a new outlook. The current views of historians and ethnologists are to his mind not in harmony with his archaeological observations. He seems sure that archaeology is right, especially the new archaeology which begins with the proto-historic, puts new substance into the framework of history and above all integrates the sequences of archaeology with those of history. He views the historical and ethnological concepts of aboriginal Nebraska as "lop-sided" and misleading. He further assumes that all current regional concepts are probably at fault and calls upon archaeologists everywhere to come up out of the trenches to set the ethnological house in order. That his views are fundamental is indicated by his statement, "it seems evident that any anthropological or sociological approach which ignores or underestimates the importance of time perspective is open to the same criticism" (p. 300). Further he avows the historic accident theory of origins and rules out the environment, but in the body of the text accepts the bison and the horse as prime conditioning factors.

The foregoing remarks are in order, since something more than a fifth of the book under review is devoted to the destructive criticism of Plains ethnology. However, the bulk of the volume comprises a technical detailed report on archaeological field-work, which we pass over with a few brief comments. Thus in 1929 the author projected a plan for work in Nebraska. Then followed a great deal of surface exploration; some five ossuaries, an equal number of villages, and many minor sites were excavated. The details are set down in the book and interpreted in terms of time sequence. The field-technique and organization of the text are commendable and the work as a whole stands more than an even chance to become a classic in the archaeology of the Missouri country. We may add that though time sequence was the all important objective, but two cases of stratification were encountered, Signal Butte near the western boundary of the state and the Gilmore Walker site near the Missouri River on the east. For other sites, indirect dating methods were used; horse bones and trade objects taken as defining the historic and arranging such sites in series according to the quantity of horse bones found therein. However, the limitations imposed by the rarity of true stratigraphy are acknowledged by the author before he offers his interpretations.

We turn now to general statements. For eastern Nebraska the author proposes a time sequence which he coördinates with those for Iowa, Wisconsin, etc.; thus, (a) the present historic level, or horse culture, (b) an immediate prehistoric horizon, named Nebraska culture, and finally, (c) an earlier horizon called Algonkin. The Nebraska is assumed to correlate with the prehistoric Siouan which archaeologists think underlies the historic Siouan east of the Missouri and in turn covers up an earlier Algonkin horizon. However, it was eastern Nebraska, only, which integrated

in this way. In the central part of the state were the Pawnee, whose prehistoric time sequence, though obviously roughly contemporary with Siouan, shows a different development.

The western part of Nebraska lies in the dry plains where the historic period opens with less sedentary tribes, for example, the Comanche. The most distinctly stratified site, Signal Butte, lies within these plains and gave three separate levels, all prehistoric; the upper with pottery, the others without. The lowest level was thought to have a good claim to antiquity. None of these levels seemed to correlate very well with either the Pawnee or the Nebraska.

In general, then, Nebraska from east to west falls into three zones of sequence having little in common save the historic level, or horse culture. The author recognizes this lack of prehistoric homogeneity and the tentative nature of his correlations. Whence then the new outlook?

In 1914 Holmes proposed two prehistoric areas for central United States, a Plains area and an Upper Mississippi area. The provisional line separating them was conceived as passing through Nebraska from north to south. The author seems to say that such a boundary is incompatible with his new data—we fail to follow. No one expects such a map-line to be absolute, though we agree that the author gives this boundary its first clear definition, no mean contribution. Then he finds pottery at Signal Butte; H. I. Smith has unpublished information as to places where a few crude sherds have been found in the dry plains, especially in Canada. So the author may be justified in assuming a thin pottery layer over the dry plains.

However, the Pawnee data seem to have contributed the keynote to the new outlook. It was observed that as horse bones increased in the proto-historic sites, pottery deteriorated. This, with historic data for the decline of Pawnee power, suggested that the immediate prehistoric Pawnee represented the Grand Period in their career. Their turn to Plains culture was then a degeneration. The next step is to assume that the historic Siouan, also, degenerated from a similar golden age. So follows the generalization that Plains culture is merely a degeneration of a Grand Period. Thus, what ethnology has placed so much emphasis upon, the author regards as "but a thin strikingly uniform veneer" over the prehistoric Pawnee-Siouan culture.

Though not quite clear, the author's attack upon the ethnologists implies that his uniform veneer wherever found in the Plains is merely a dressing for a prehistoric culture of the Pawnee-Siouan type. There are obvious difficulties in harmonizing such a view with geographical and historical data for the dry plains and the northern grasslands. Unpublished data for the Assiniboine, Flathead, Cree, and Kutenai seem not to fit into such a scheme. However, since the author's interpretations are based upon Nebraska only, we prefer to wait until the archaeologists in a few other states present their data.

Yet, though not ready to accept the view that the Plains culture of ethnology is a broken down prehistoric culture, we believe that the author does present a new approach through the methods of archaeology, a procedure by which the historic, protohistoric, and prehistoric can be distinguished. Apparently ethnologists ir-

ritate him by ignoring time relations. It is true that the documentary data for Plains tribes is dated and as a whole falls into such periods as exploration, fur-trade, and reservation days. He shows how archaeology can enrich this historical framework and integrate it with proto-historic and prehistoric sequences. There are those who believe ethnology bankrupt and seeking refuge in psychiatry, but now we see archaeologists as ready to occupy the abandoned field with a rejuvenated historical method. They demand that ethnologists become thoroughgoing historians or move out.

CLARK WISSLER

AMERICAN MUSEUM OF NATURAL HISTORY

Die Dualistische Kultur in Amerika. A. W. NIEUWENHUIS. (Internationales Archiv für Ethnographie, Supplement, Vol. 32, 1933.)

Clan and Moiety in Native America. ROLAND L. OLSON. (University of California Publications in American Archaeology and Ethnology, Vol. 33, No. 4, 1933.)

Here are two volumes of considerable interest to the student of social organization. While Dr Olson's paper has already been critically examined by Lowie in a recent number of the AMERICAN ANTHROPOLOGIST,[1] it still seems profitable to compare his general assumptions and results with those of Professor Nieuwenhuis. Both authors are primarily concerned with the history of dual organizations in the New World and both make use of much the same data. Here, however the similarity ends, for so different are the presuppositions and methods of the two authors that quite different results are achieved.

Dr Olson as a matter of fact does not deal especially with the actual *history* of "unilateral institutions" in the New World. By defining these institutions very broadly he attempts to show that they are preponderent in all the major areas except the peripheral ones. Further they have too many arbitrary associations to be independently developed, and their wide distribution suggests that they most likely belong to the "archaic" culture of the early immigrants. Presumably, then, they would be spread by migration and diffusion southward, the peripheral groups losing them under the stress of environmental conditions in marginal regions.

Professor Nieuwenhuis, on the other hand, limits his study to moiety organizations and attempts to trace their actual history in the New World. From a series of earlier studies of the "Dual-Culture" in Oceania he has come to the conclusion that the basis for this culture complex is to be found in a principle of the sexual division of society and nature, e.g., the sex-totemism and beliefs of southeastern Australia, Extending his investigations to the New World he finds evidence of sex-totemism in Preuss' account of the Kágaba, an Arawak tribe of northern Colombia. Following Pater Schmidt he hypothecates for the New World an *Urkultur* (with high gods, simple social organization, etc., represented by the Algonkin, Inland Salish, North-

[1] R. H. Lowie, Some Moot Problems in Social Organization (American Anthropologist, Vol. 36, pp. 321–30, 1934).

ern Plains tribes, etc.) which is overlaid by a *Dualistische Kultur* with exogamous moieties, a dual differentiation of nature, complex mythology, sex-gender in language, etc. This "Dual-Culture" which developed among the Kágaba and other Arawak tribes was introduced by way of the Antilles into the lower Mississippi region, from whence it spread fanwise to California, to the Central Siouans, Iroquois, and other tribes, the culture diminishing in intensity the further it spread.

There is much that is suggestive and valuable in these two papers and other workers will be grateful for the mass of material which is here compiled. But in neither case does the "history" seem to develop out of the evidence presented; rather both authors develop their "history" on the basis of certain assumptions which are open to serious question, and proceed to marshall the evidence to support their position. The degree to which there is a selection and interpretation of data is clearly brought out by a comparison of the two studies. For example, Olson makes much of the data for the Northwest Coast, Mexico, Central America, and the Andean region, while Nieuwenhuis ignores the Northwest Coast and considers the other regions as marginal to his "Dual-Culture" and not involved in its transmission. The Southwest is shown to be not a transmitting point on the basis of Zuñi material, whereas other Pueblo groups would give a different picture.

With these recent studies we now have several quite contradictory "histories" of social organization in the New World. It seems to the reviewer that these studies are starting at the wrong end. It would seem important to first find out what dual organizations are and how the various forms of unilateral institutions are related to each other, and secondly, to attempt to unravel the historical situation in the individual areas. Olson compares areas rather than individual tribes, and takes the historical relations of tribes within an area for granted. But if these relations give a series of social organizations as varied as those found within the Southwest, the Northwest Coast, California, or the Plains, how can more diffuse contacts between areas, coupled with diverse environments, yield greater similarities?

FRED EGGAN

UNIVERSITY OF CHICAGO

Naskapi. The Savage Hunters of the Labrador Peninsula. FRANK G. SPECK. (248 pp. 19 pls., 26 figs. $3.50. Norman: University of Oklahoma Press, 1935.)

Though the Montagnais-Naskapi are found to be an exceptionally crude and simple people, they possess an essentially religious nature. Obtaining subsistence solely by the chase, they have worked out a spiritualistic system as complete and as artificial for gaining control over animal spirits as their hunting devices and weapons are effective in accomplishing the physical slaughter of game.

It is this spiritualistic system of the Naskapi-Montagnais rather than their secular hunting culture that Speck describes in the present work. An orderly summary of the content of this system is not easily made. Naskapi theologians have not reduced their religious ideas and practices to a coherent unity expressible in a simple formula. The following appear as the outstanding features of the system.

Manitu, described as representing something close to our notion of unseen force, is the dominant spiritual element. In the practices based on the manitu-concept the soul of the individual is the focal center. The active soul or Mistapeo provides the means of overcoming the spirits of animals by revealing in dreams when and where to hunt for game, how to proceed and how to satisfy it when slain. The process of self-study, of dream cultivation, and submission to dream control becomes the dominant idea of the inner life. Dreams are induced by personal, as distinct from professional, conjuring practices, such as singing, drumming and rattling, the sweat bath, seclusion and meditation. The dreams must be interpreted with the aid of divination, which consists principally in the use of bones of animals.

Finally the dreams obtained and interpreted remain to be paid for; satisfaction to be rendered to the dream source and to the animals whose lives fall victims to its power. The means of compensation are to be found in the respect paid to the animal remains, in the observance of the animal post-mortem rites . . . and in the execution of symbolic and decorative art designs.

Their mythology reveals the culture hero

as the personification of those aspirations held highest in the mind of the Naskapi, as the master of that conjuring craft exerted over man and animal which the hunter strives so hard to develop within himself.

The religious concepts and practices of the Naskapi-Montagnais with whom Speck has had such intimate contact during these last three decades are in the main identical with or similar to those of the western Naskapi-Montagnais of the east and southeast coast of James Bay, but on the other hand differ therefrom in several important respects. Among the latter, manitu is not so much unseen force as supernatural personality. Mistapeo is the head spirit of the shaking tent rite, not a super-self. Most of the hunting observances appear much more closely tied up to aboriginal theism, and the Supreme Being concept itself, with its related hierarchization of subordinate spirits, is much closer to that of the York Cree as described by David Thompson than to that of Speck's Naskapi.

All in all, the close-up view given us in "Naskapi" of the inner spiritual life of the Labrador hunters is a distinguished contribution, by a sympathetic and uniquely qualified observer, to our knowledge of the aboriginal American religious consciousness.

REGINA FLANNERY

CATHOLIC UNIVERSITY OF AMERICA

After Coronado. ALFRED BARNABY THOMAS. (xii, 307 pp., 2 maps. $3.50. Norman: University of Oklahoma Press, 1935.)

This is an excellent book which no archaeologist or ethnologist interested in the Southwest or Plains can afford to overlook. It is not only full of suggestive points of inquiry but also offers solutions to many of the major problems of cultural integration in these two areas. Dr Thomas is one of the very few American historians who makes real use of ethnological data and understands the significance of "cul-

ture" in its anthropological context. His works are doubly valuable because of this dual perspective.

The first third of the book contains an account of the Spanish, French, and Indian relations from the reconquest of the Southwest up to 1727. The remainder consists of the translated documents from which the information is derived. It shows conclusively that until the beginning of the eighteenth century there was no abrupt line of demarcation between Pueblo and Plains culture and that the eastern Apache-speaking people were appreciably like the Pueblo in culture. This very real cultural transition disintegrated only after the intrusions of the Comanche and Ute. Abundant data are also given on the movements and inter-tribal relations of Pueblo, Apache, Comanche, Ute, Pawnee, Kansa, and on the extent to which these tribes were influenced by the French and Spanish. These with many cultural observations offer valuable clues to the ethnology of these peoples and a basis for a reexamination of and further archaeological research in New Mexico, Colorado, Kansas, and Nebraska.

At two points Dr Thomas' conclusions may be questioned. He conjecturally places the site of the Villasur massacre near the junction of the North and South Platte Rivers. There is no present archaeological evidence confirming the location of a Pawnee village in this vicinity. Furthermore, both archaeological and other historical data for this period place the nearest Pawnee settlement approximately one hundred and twenty miles east of this point.[1] Should this engagement have occurred instead at the junction of the Loup and North Platte, as has been suggested by Sheldon,[2] it would also alter or somewhat enlarge Dr Thomas' location of the Apache rancheria El Cuartelejo. In this connection it is possible that El Cuartelejo, like Quivira, was a term applied to a much larger area than is indicated by the present account. However, these are minor points which in no way diminish the high quality or uniform excellence of the contribution.

W. W. Hill

Berkeley, California

The Prophet Dance of the Northwest and Its Derivatives: The Source of the Ghost Dance. Leslie Spier. (General Series in Anthropology, No. 1. 74 pp., map. $1.00. Menasha, Wis.: George Banta Publishing Co., 1935.)

Spier's main thesis is that the ultimate origin of the two Ghost Dance movements of 1870 and 1890 was not with the Paviotso, as has been generally assumed, but in the Northwest among the tribes of the interior Plateau area. For this much earlier source cult, which appears in the ethnographic accounts under various names such as dream dance, ghost dance, religious dance, praying dance, and so forth, he coins the name Prophet Dance. His marginal thesis is that this northwestern cult

[1] See W. D. Strong, An Introduction to Nebraska Archeology (Smithsonian Miscellaneous Collections, Vol. 93, No. 10, 1935) and W. Wedel, Introduction to Pawnee Archeology (Bulletin, Bureau of American Ethnology, 112, in press).

[2] Nebraska History and Record of Pioneer Days, Vol. 4, No. 1, 1923.

was also the source of the Smohalla cult of eastern Washington-Oregon and its modern form, the Pompom or Feather religion, and perhaps of the pseudo-Christian sect of Shakers now flourishing in adjacent coastal territory.

The Prophet Dance complex was known to all the tribes of the northwestern interior from the Babine and Sekani in the north to the Paviotso of western Nevada in the south. It is known to have flourished in its northern form at least as early as the opening of the nineteenth century. Its basic components were an integral part of the Northwest Coast culture as well as of that of the Plateau.

This northwestern cult agrees precisely, Spier maintains, with the core of the Ghost Dance religion among the Paviotso, and the circumstances of its appearance among the latter parallel those of earlier date in the Northwest.

Each phase of this embracing synthesis and genetic reconstruction is generously documented. The evidence is drawn from widely scattered manuscript and published sources. Spier's splendid command of his source material has served him well in assembling these data. Incidentally, the study is a signal illustration of the aid which we in our ethnological reconstructions can often find—but which we so often neglect to seek—from dated and strictly historical documents.

The evidence is marshaled with order and clearness and discussed with caution and balance. The study as such is a model of restrained and sustained ethnological reasoning and interpretation. To the present reviewer Spier appears to have established both his main and marginal theses on a basis that will not easily be shaken. As a result, the chaos of aboriginal Indian messianic and kindred cults has become a cosmos, and a new epoch begins in the historical interpretation of American messianism. The General Series in Anthropology is off to an auspicious start.

A final word on format. The monograph appears in double-column pages, photolithographed from typescript. Spier, to cut costs in these days when funds for publication fall so far short of waiting copy, has followed the counsels of his own good sense and taken his courage in his hands. And happily, too, he has not seemed to worry much whether the typescript right-hand margins were flush or not. Who cares anyhow?

JOHN M. COOPER

CATHOLIC UNIVERSITY OF AMERICA

The Significance of the Dated Prehistory of Chetro Ketl, Chaco Cañon, New Mexico. FLORENCE M. HAWLEY. (x, 80 pp., 18 pls. Albuquerque: University of New Mexico Press, 1934.)

In 945 A.D., a masonry pueblo (now designated Chetro Ketl) was growing near a small surface stream in an evergreen forest. Its inhabitants used "Type I Masonry" and preferred a semi-polished black-on-white pottery.

Between 1030 and 1090 A.D. the pueblo showed its greatest development. "Type II Masonry" (1030–1070) was better; "Type III Masonry" (1062–1090), best. Extensions and rebuilding resulted in the ground plan of today. Polished black-on-white pottery became most abundant. This most flourishing period began with a six-year drought, and growth showed no dependence on rainfall.

For no apparent reason more plausible than aridity caused by deforestation, the pueblo declined and was deserted about 1116 A.D. Masonry types IV, V, and VI display increasing degeneration during this period; but polished black-on-white pottery continued prevalent.

Such is Miss Hawley's reconstruction of a bit of the prehistoric Southwest.

Primarily, it shows how the Douglass tree-ring method may be applied to an archaeological problem. Secondarily, Miss Hawley has to her particular credit the development of a chronological master chart from refuse charcoal, and the demonstration that upper strata are not thereby more recent than lower strata.

The author's acquaintance with her background is suggested by a fluent and pleasing use of current assumptions. Her style is clear, concise and vivid with almost none of the prehistorian's difficulties-to-be-overcome tremolo. There is no undue stressing of handicaps. Logic over-rules desirability in her conclusions. Fact after fact suggests long, tedious, arduous, personal work; but Miss Hawley owes herself, as well as the reader, a more definite statement as to the exact work she did in preparation for her conclusions.

After explaining the Douglass tree-ring dating technique, Miss Hawley dates the wooden construction material in Chetro Ketl. Next, the six masonry types of the pueblo are described and dated through their relation to the wooden material. Superposition of masonry types furnishes a check on the tree-ring dates. The masonry types are now available as relative age criteria (e.g., like geological strata); an understanding of the re-use of material has been developed; and a framework of dates has been constructed. Building, alteration and reconstruction within the pueblo can now be recognized. Periods of activity, growth, and decay are established.

However, Miss Hawley's originality is most obvious when she turns to one of the refuse mounds. Soil characteristics enabled her to recognize four strata. First, sherds from these strata were classified into eight types, significance tests were applied, and strata compared on the basis of sherd content. Stratum 1 was essentially the same as 3; 2 as 4. Then, from the tree rings on the charcoal fragments in the strata, she constructed a chronological chart.

Now, many an archaeologist's digging has left him with but the dust of yesteryears on his hands and mind, yet sustained by the knowledge that virtue is its own reward and stratification is always stratification. How demoralizing then to learn that Miss Hawley's chart showed Strata 4 (the topmost) and 2 older than Strata 3 and 1 (the lowest). The orthodox unrolling of culture from the bottom up is impugned. In our dump, the can-opener may be older than the coup de poing. Here is a very real contribution to archaeology.

Miss Hawley's explanation is that Strata 1 and 3 consist of current waste while 2 and 4 are composed of material torn down or shifted because of building operations.

Pottery types are thus connected with masonry types. Soil composition and statistical studies are tied to tree rings. The results are three age criteria, a remarkable series of dates, and a capable demonstration of how to use certain new tools in archaeological research.

The editor of this series cannot be congratulated. From the "Table of Contents" where "protocols" appears under "Plates" (as they do not in the paper) to the last plate (where no figure numbers are given), errors are numerous. Not to list them all, but to give some examples: p. 19, "Fig. 2, Plate 7," which is Fig. 2 ?; p. 34, "Fig. 2, Plate 10," none; p. 47, "Protocol 2," 3 ?; p. 54, "underlined figures," none; p. 69, p. 74, "Plate 10," 1 ? Far more deplorable are the plates. Intelligently conceived and ingeniously devised, most of them are so incompetently reproduced as to be practically worthless; e.g., I, VI, IX, XIII. What wonder that Miss Hawley finally illustrates different things with the same figure—"inferior" and "superior" masonry (p. 25, "Fig. 5, Plate 12")?

A foreign scholar might wish to ask Miss Hawley some questions on secondary matters. For example: Can the years 900–950 A.D. (from Plate I) be referred to as the "9th century"? (p. 11). Or is 1116 part of the "11th century"? (p. 22). Is not the age of Mesa Verde (073–1252) puzzling? (Plate I). Are not the peripheries of today the possible centers of tomorrow in a refuse dump? (p. 52). Do westerly winds drift sand on the *west* slope of a dump? (p. 56). What is the "natural death" of a culture? (p. 74).

W. EGBERT SCHENCK

TWENTYNINE PALMS, CALIFORNIA

New Archaeological Sites from the State of Falcón, Venezuela. GLADYS AYER NOMLAND. (Ibero-Americana: 11. 100 pp., 20 figs., 6 pls. $1.50. Berkeley: University of California Press, 1935.)

Mrs Nomland presents a study of archaeological collections from three prehistoric sites, Coro, El Mamón, and La Maravilla, located in the coastal section of the State of Falcón between the towns of Urumaco and Coro. The work consists of the description and analysis of an unstated number of unstratified specimens, the great majority of which are fragmentary potsherds. It is not clear from the report whether the author has ever been in Venezuela but the lucid descriptions of the sites indicate a personal experience. The material from La Maravilla and the principal part of that from El Mamón are definitely stated to have been collected by others. The specimens for the most part are described collectively for each site, first according to types of ware, then other characteristics. To the verbal description seventeen pages of excellent drawings add invaluable clarity.

In analysis, Mrs Nomland couples with her descriptions useful comparative data on specimens from other parts of the Caribbean area. A special chapter on "Clays and Temper, Firing and Modeling" treats special aspects of the subject with notable thoroughness. In general, the author's conclusions indicate interest in both the chronological and geographical relationships of her material. With regard to the former, the methodology implies concern with the development of simple wares into complex as an index of relative time in an evolutionary relationship. This is also borne out by the statement "Differences in pottery styles imply differences in chronology," which appears invalid from other points of view. The reviewer does not mean to imply that the author is not aware of other points of view but

may be less secure in working with them (*vide* p. 23, ". . . vessels executed in the most primitive style may belong to a later period than newer appearing varieties"). At least emphasis on a consideration of the possibilities of diffusion from the point of view of time is lacking.

With reference to space relationships, a table gives differences and similarities between the three sites described in this study and that of Hato Viejo previously studied.[1] The table lists thirty-eight pottery types or characteristics (one appears to be repeated) but loses most of its value because the characteristics are not weighted whether considered objectively (flat griddle-plate is equivalent to plain red ware) or as statistical units (only presence or absence is indicated with one exception). That "Coro stands out as being quite dissimilar to the other sites" is the principal factural conclusion. That "it appears probable that Coro was chronologically earliest, and La Maravilla . . . the latest, while El Mamón and Hato Viejo . . . probably lie somewhere in between," is given as conjecture.

CORNELIUS OSGOOD

PEABODY MUSEUM, YALE UNIVERSITY

OCEANIA AND ASIA

Both Sides of Buka Passage. BEATRICE BLACKWOOD. (xxiii, 624 pp., 29 figs., 80 pls., 2 maps. $12.00. Oxford: Clarendon Press, 1935.)

Manus Religion. R. F. FORTUNE. (Memoirs, American Philosophical Society, Vol. 3. ix, 391 pp., 10 pls. Philadelphia, 1935.)

These two books are both valuable additions to our knowledge of Melanesia. They are interesting both in themselves and as examples of different techniques in the study of uncivilized peoples. Miss Blackwood's book is the most complete account of the life of a Melanesian tribe which the writer has so far encountered. It is a monumental work, running to six hundred pages of small print without counting the numerous and excellent illustrations. It is unusually well organized, with a minimum of repetitive material, and this bulk merely reflects the richness of its content. Any investigator can find here information on any phase of native life, while the section on dreams represents a new departure in ethnological research and one of great interest to psychoanalysts. There is abundant evidence throughout that the author was a keen observer and phenomenally hard worker and no problems which can be solved by this combination remain to be solved.

At the same time, one feels that the author's very breadth of interest is reflected in a certain loss of depth. Although there are a number of good and valid interpretations of particular phases of native life, the reader is left uncertain as to how the natives actually feel about most things. It is plain that the author allied herself with the men's side of the society. This threw open for observation large areas of the culture which would otherwise have been closed to her, but it also prevented her

[1] G. A. Nomland, Archaeological Site of Hato Viejo, Venezuela (American Anthropologist, Vol. 35, pp. 718–41, 1933).

from becoming a full participant in the life of the community. The men apparently welcomed her at their ceremonies and gave her full facilities for observing and recording everything that happened, but the reviewer doubts whether they ever forgot that she was there. The women seem to have extended similar facilities but there is plenty of evidence that they never fully accepted her as one of themselves. One feels that Miss Blackwood knew her tribe well but not intimately. It is quite possible that the attitudes of the tribe precluded such intimacy with a European in any case, but its lack is to be regretted.

In sharp contrast with the preceding work, Dr Fortune's book reveals a close intimacy with his subjects. He seems to have known every one in the village well and to be able to describe their personalities and emotional reactions as accurately as the average individual could describe those of his European neighbors. All this knowledge is applied to the description and interpretation of a single phase of the culture. This is presented to us in all its aspects with a wealth of illustrative case material, native opinions, etc. After reading the book the average student will feel that he knows a great deal about Manus religion but only a little about Manus culture as a whole. Dr Fortune is not to be criticised for this, since he has quite deliberately limited his field and has done an excellent piece of work within the bounds which he has set for himself. At the same time it is to be hoped that Dr Fortune will sometime apply the same technique to the description of some culture as a whole. For example, it would be extremely interesting to know how the Manus people feel about their constant economic exchanges and just how necessary the religious sanctions which he describes are to the continued working of the system.

At the present time there is a notable lack of ethnological studies which have both breadth and depth, insight and objectivity. A combination of Miss Blackwood's and Dr Fortune's techniques might result in such a study. While the bulk of such a work would be formidable, it certainly seems worth attempting.

RALPH LINTON

UNIVERSITY OF WISCONSIN

South Seas. HUGO ADOLF BERNATZIK. [Vivian Ogilvie, tr.] (xiv, 167 pp., 103 illus. map. $3.50. New York: Henry Holt and Company, 1935.) [Published in England and Germany under title "Südsee."]

Although intended for a popular audience this book by a professional anthropologist should not be ignored. The vignettes of field-life in the Solomon Islands, in the coastal islands and interior of southeast New Guinea, and in Bali, are skillfully translated to interpret the charm, vitality, and intimate sympathy of Bernatzik's viewpoint. Of prime value are the many photographs which magically capture every mood of native life from the quiet rapport of a father and son to the pitched intensity of a poised spear-thrust.

Certain items provoke speculative interest. On Owa Raha (Solomons) the author obtained an extensive series of pencil drawings made by children, adults, and a priest, who presumably had never used such a medium. The subjects were spontaneously chosen: in the enormous range, which clearly exposed each drawer's interest, but two were definitely erotic, these from two frustrated boys. The priest reproduced

in extenso the form and activities of innumerable spirits whose world existed only in the realistic imagery of his own mind (pp. 21–23, 36–39).

Beyond the upper Purari River (eastern New Guinea) Bernatzik encountered Papuans whose basic culture closely resembled that of the upland pigmy tribes in the high northwest interior of the island (p. 97 *passim*).

Bali's tainted culture is briefly and regretfully touched upon.

A. H. GAYTON

NEW HAVEN, CONNECTICUT

The Hill Bhūiyās of Ōṛrissā. SARAT CHANDRA ROY. (xxxviii, 320 pp. Rs. 8. Ranchi: "Man in India" Office, 1935.)

This work is the author's fifth monograph on the aboriginal tribes of the hill region of central India, following studies on the Munda, Birhor, and Oraon. The Bhuiya (variants: Bhumia, Bhuihar, Bui, etc.) are a Munda or Kolarian people numbering approximately one and one-half millions, including the kindred Musahar of Bihar. Although replete with comparative notes on the Hinduized Plains Bhuiya, the book concerns itself principally with the more primitive culture of the Hill Bhuiya, who live between 21° and 22° N. lat. and 85° and 86° E. long. in the forested hill ranges of the Orissa Feudatory States of Keonjhar, Bonai, and Pal Lahera.

Bhuiya culture is consistent with that of adjacent tribes, as is revealed by a brief tabulation of some of its outstanding elements: a food quest based on the cultivation of dry rice and vegetables with subsidiary hunting, gathering, and fishing activities; brand-tillage with decennial relocation of villages; dormitories for bachelors and commonly others for unmarried girls; a patrilineal, patrilocal, and patripotestal family organization; village exogamy with subtribal endogamy; predominant monogamy with cross-cousin marriage and the levirate; traces of tree-marriage and ceremonial capture; dual chiefship (secular and sacerdotal) in the village; earth-burial with subsidiary cremation; worship centering about a supreme sun god, an earth goddess, ancestral household spirits, and tutelary divinities of villages and subtribes; and an annual cycle of ceremonies correlated in the main with the phases of agriculture. Contrasts with neighboring cultures are noted, e.g., the absence of sibs and totemism.

All aspects of culture receive consideration. One might wish, however, for a somewhat more adequate treatment of the material culture and a clearer analysis of the theory of disease, which is said to be caused by offended spirits, sorcery, and the evil eye and cured by sacrifices, magical techniques, and herbal remedies. If the work falls short, in many respects, of the highest standards of modern ethnographical reporting, it is nevertheless so incomparably superior to most of the existing accounts of aboriginal cultures in India that criticism seems like cavil. One welcomes in particular the detailed anthropometric measurements of one hundred adults given in Appendix I and the full recording of the kinship system with the behavior patterns associated therewith. The book has a map and an index, but lacks a bibliography and is marred by numerous typographical errors.

GEORGE PETER MURDOCK

YALE UNIVERSITY

Concepts of Disease among the Primitive People of India. PRAPHULLACHANDRA BISWAS. (Journal of the Department of Letters, University of Calcutta, Vol. 25. 28 pp. Calcutta, 1934)

Social Organisation of the Aimol Kukis. J. K. BOSE. (*Ibid.* 24 pp.)

Dual Organisation in Assam. J. K. BOSE. (*Ibid.* 29 pp.)

Primitive Religion, Social Organisation, Law and Government amongst the Santals. P. C. BISWAS. (*Ibid.*, Vol. 26. 84 pp. Calcutta, 1935.)

An Ethnic Analysis of the Culture-traits in the Marriage Customs as found among the Rādhiya Brahmins of Mymensingh. NIRMAL CHAKRAVARTI. (*Ibid.* 80 pp.)

The Khasis. TARAKCHANDRA RAYCHAUDHURI. (*Ibid.* 24 pp.)

The above list of titles will serve to remind American anthropologists that the "Journal of the Department of Letters" of the University of Calcutta carries a considerable number of articles of sufficient quality and interest to merit their attention. The first of those listed supplements the general study of Clements. The last is strictly anthropometrical in content. The second is descriptive, the fifth comparative, the third a survey. The fourth is a significant contribution to Santal social organization and includes a full list of kinship terms.

GEORGE PETER MURDOCK

YALE UNIVERSITY

PHYSICAL ANTHROPOLOGY

Census of India, 1931. *Vol.* 1—*India, Part* 3—*Ethnographical; A. Racial Affinities of the Peoples of India.* B. S. GUHA. *B. Ethnographic Notes* by various authors, edited by J. H. HUTTON. (356 pp., pls., maps, diagrams, tables. 13s. Simla: Government of India Press, 1935.)

Races of India. BHUPENDRANATH DATTA. (Reprinted from the Journal of the Department of Letters, Vol. 26, pp. 1–82. Calcutta: University Press, 1935.)

Anthropological Notes on Some West-Bengal Castes. BHUPENDRANATH DATTA. (Man in India, Vol. 14, Nos. 3–4, pp. 1–27, July-December, 1934.)

Observations on Some Oblique-shaped Indian Skulls. BHUPENDRANATH DATTA. (Man in India, Vol. 12, pp. 19–30, 1932.)

The Mysore Tribes and Castes. Vol. 1, Chapter 1. The Position of Mysore in India's Racial History. BARON VON EICKSTEDT. (80 pp., 21 pls. Bangalore: Government Press, 1934.)

The amount of anthropological research now going forward in India is beginning to be commensurate with the vast anthropological importance of that great country. As is fitting, Indian anthropologists are taking the lead in these investigations. Dr B. S. Guha, Anthropologist of the Zoölogical Survey of India, has produced a work which must be reckoned as a more important contribution to the physical anthropology of the country than any heretofore published. The material includes measurements and observations of 51 "racial groups" from all parts of India, totalling

3,774 individuals. Virtually all of these subjects were measured by Dr Guha himself, using standard instruments and techniques.

The method of analysis employed is principally the comparison of groups by the use of Pearson's Reduced Coefficient of Racial Likeness. The reviewer must confess that he himself regards the said coefficient with no little suspicion, arising, no doubt, from his inability to comprehend the merits of its beautiful elaboration. Nevertheless he agrees that some expression of the degree of likeness or difference between two series, based upon a large number of characters, is highly desirable for racial analysis, and he supposes that no one is more fully competent to devise such a measure than Professor Pearson. Was it Samuel Johnson who said, "Doubtless God could have made a better berry than the strawberry, but doubtless he never did"? We shall then disregard our personal dislike for strawberries and coefficients of racial likeness and consider Dr Guha's results.

On the basis of the Coefficient of Racial Likeness and of morphological observations, Dr Guha discerns the following racial elements among the peoples of India:

A. A short-statured, long-headed element with high cranial vault, faintly marked supra-orbital ridges, broad, short, orthognathous face, medium lips, mesorrhine index, skin color from light brown to dark brown, hair color black, hair form straight to wavy, and moderate in amount on face and body. This element forms the predominant type in the greater part of the lower stratum of the population of Northern India.

B. In the western littoral and Bengal, a brachycephalic element of medium stature, with flattened occiput, high head, and receding forehead. The face is short and orthognathous, but broader than in the first type. The nose is long and "highly pitched," but often arched and convex. Skin color varies from pale white to tawny brown. Eye color is usually dark; hair is usually black and straight. A few light eyes and rare cases of brown hair occur in this type.

C. In Northern India a tall, long-headed, lower-headed strain with long face and prominent, narrow nose. In its purest form the skin color is rosy white, and eyes gray-blue. The hair is straight and "chestnut" in color. In mixed varieties the pigmentation is darker.

In the aboriginal population:

D. A short dolichocephalic strain with marked brow ridges, broad, short face, prominent lips, small flat nose with spread alæ. The hair varies from wavy to curly and the skin color approaches black. This type is closely allied to the Veddas of Ceylon, the Toalas of Celebes, the Sakais of the Malay Peninsula, and represents a less primitive form than is found among the Australians.

E. A dark pigmy strain with spirally curved hair, remnants of which are still found among the Kadars and the Pulyans of the Peramabicullan Hills, but which is mostly submerged in India at the present time.

F. A mongoloid type along the sub-Himalayan regions; brachycephalic, short, flat-nosed with alveolar prognathism. This type appears in several variants.

G. A mongoloid type with medium stature, longish head, and medium nose, but with the typical mongoloid features of face and eye. This type occurs in Assam and Northern Burma.

All of the foregoing classification seems to be established indisputably, with the exception of the pigmy strain. Dr Guha's anthropometrically distinguished types

are apparently substantiated in the gallery of portraits appended to his monograph. His summary of prehistoric skeletal evidence is less satisfactory, probably because the material is very scanty. Guha finds probable descendants of the Combe-Capelle race, Armenoids, Alpines, Mediterraneans, and Proto-Nordics, as well as primitive Australoids. The skeletal remains include nothing which can be identified as Negrito, although the author is sure that such an element must have been present in the population. The reviewer finds nothing inherently improbable in these conclusions, but is inclined to regard them with reserve. As to the anthropometry of the living races—if one brings home the bacon, it is possibly immaterial whether one has got it with a shot-gun or a blow-gun, with Pearson's Coefficient of Racial Likeness or with Dixon s infamous trinity of indices. In any event, Dr Guha has produced a magnificent and invaluable study.

Dr Datta, in his "Races of India," proceeds with great gusto to macerate all of the anthropologists who have dealt with the peoples of India, beginning with Risley and ending up with the Baron von Eickstedt and some one who Dr Datta refers to, rather contemptuously, as "the Census reporter." One suspects this unfortunate to be Dr Guha. As an iconoclast, Dr Datta wields a most vigorous hammer. He seems to feel, and probably rightly, that Indian anthropologists have been altogether too willing to accept the speculations of Europeans as to racial origins of the Indian population. He comes to the conclusion that what is needed is more of accurate and systematic investigation and less of speculation. The reviewer (who has not written anything in the nature of a serious contribution to the anthropology of India) found Dr Datta's critique most stimulating and amusing. The other two papers of Dr Datta indicate that he is active in anthropological research as well as in criticism. More power to his elbow!

Baron von Eickstedt's brochure on "The Position of Mysore in India's Racial History" was written as an introduction to a number of volumes on the tribes and castes of Mysore by Mr Ananthakrishna Iyer, described as the "Nestor of Indian Anthropology." Dr von Eickstedt's contribution is an anthropo-geographical excursus upon the relation of Indian races to their environment, a classification of the races, and a reconstruction of their historical sequence in Mysore. The present review must be limited to a brief outline of the author's racial findings. He recognizes three main racial divisions:

I. Primitive jungle group—Ancient Indians or Weddid
   (1) Dark brown, curly haired with totemistic mattock-using culture (with matriarchal influences): Gondid race
   (2) Black-brown curly (narrow curls) with originally ancient culture (with foreign influences): Malid type

II. Mixed and dislodged group—Black Indians or Melanids
   (1) Black-brown progressive people in the most southern plains with strong foreign matriarchy (now strongly overstratified): South Melanids
   (2) Black-brown primitive people of the northern Deccan forests with strong foreign (totemistic and matriarchal) influences: Kolid type

III. Racially progressive people of the open regions—New Indians or Indids
   (1) Gracile brown people with enforced patriarchy: Gracile Indid race
   (2) Coarser light brown people with possible original patriarchal herdsmanship: North-Indid type.

The reviewer, who yields to none in admiration for the prodigious industry of Dr von Eickstedt and who hereby highly resolves to read his vast work on the races of man, is revolted by his innovations in racial terminology. All of the Ids from Hominid to Mediterranid and Brachid seem superfluous, cacophonous, and Germanid. His Weddid group corresponds with Guha's D race, his Gracile Indid with Guha's A (Mediterranean) race, and the Coarser Indid with Guha C (Proto-Nordic). He recognizes no Armenoid and no Negrito elements. Von Eickstedt's effort to bring the races into relation with their geographical environment and with their social structure is interesting. The reviewer does not venture to offer an opinion as to its validity. There is a passage in the chapter which merits quotation:

> With the question as to the causality of racial facts the temporal moment of the development of the Hominids (mankind) enters the foreground, and from racial anthropology originates racial history. By this the method is fixed: the curve of racial historical happenings results from the inner connections between the somatic facts and their biological dynamic on the one hand, and the different spacial conditions on the other. Its course, disclosed on [*sic*] a deductive way, then underlies the critical comparison with the results of the neighbouring historical disciplines which have arisen in the same spacial unit (p. 71).

The foregoing statement ought to arouse the interest of methodologically inclined readers of the AMERICAN ANTHROPOLOGIST.

This woefully inadequate review must not neglect at least a mention of the numerous and valuable ethnographic notes upon the tribes of India edited by Mr J. H. Hutton. A bare listing of topics and authors would consume a page of space in this periodical. One can only congratulate Mr Hutton and refer American anthropologists to this treasure-house of material.

E. A. HOOTON

HARVARD UNIVERSITY

Heredity and the Ascent of Man. C. C. HURST. (ix, 138 pp., 9 figs. $1.50. New York: Macmillan Company, 1935.)

In this small volume Professor Hurst has condensed the contents of his earlier presentation of the same subject, published in 1932 as "The Mechanism of Creative Evolution." It is by the author's word for the general reader, a popular epitome on "recent research in genetics in so far as it is concerned with the origin, evolution and ascent of man." But the scope of these 138 pages is even wider than this statement would imply; Dr Hurst aims to build up a picture of the whole biological procession from the lowly progene of recent biological speculation to a far-distant "immaterial type of being" of his own imaginative conception, and to give what he regards as the most plausible account of the dynamics involved. Obviously there can be little space for any very detailed analyses of controversial issues.

A large part of the treatise deals with specific genetic topics: the functioning of the gene complex in the distribution and development of traits, the sources of change in germinal material through gene mutation and chromosomal transmutation, disjunction, dislocation and polyploidy, the mechanism of sex and its interpretation in terms of the relatively new theory of genic balance. The presentation, however, is not textual in character. It is highly selected for the purpose of explaining evolution

and Dr Hurst discusses only as much of the material of elementary genetic doctrine as may be necessary for initiating the non-professional reader into the idiom. In the application of experimental results to the interpretation of evolutionary problems he has synthesized the latest available data and filled in the outlines of the Mutation Theory with ease and conviction. The general reader will resent the simplification in proportion to his awareness of the questions left unraised.

The author's attack on the problem of origins is in line with considerable recent biological speculation on the apparent similarity between the auto-catalytic viruses and the bacteriophage, and the gene. He reconstructs an early progene, half-alive, "midway between a self-reproducing chemical ferment and a living ultra-microscopical organism" which by a fortunate combination of atoms achieved the power "to grow, to reproduce and to mutate." In the course of evolutionary time the superior genes survived and incorporated, as it were, into chromosomes, whence was derived the setup for the progressive evolution of more and more complicated forms and the functioning of hereditary material as the geneticist now understands it. The account as presented is a persuasive one, but the amount of clearly established evidence is slight. Dr Hurst does not indicate it specifically, nor does he make entirely clear to the reader the line between reasonable inference and the purely hypothetical reconstruction.

The remaining chapters deal with Man, the final product of evolution to date. Dr Hurst presents a panoramic view of the history of civilization by way of illustrating the character of Man's most distinctive evolutionary potentiality, mind. He suggests that future progress will be chiefly in the direction of increased intellectuality, provided man can be moved to "replace natural selection by human selection," by the increased fertility of the high grade.

CAROLYN ADLER LEWIS

COLUMBIA UNIVERSITY

Race, Sex, and Environment: A Study of Mineral Deficiency in Human Evolution. J. R. DE LA H. MARETT. (342 pp. 21s. London: Hutchinson's Scientific and Technical Publications, 1936.)

The author assumes a causal relationship between environment and race, and announces as his thesis "that a natural selection for an economy of various food substances has played a very important part in guiding the evolutionary process." Thus Man's peculiar physical type may be due to a possible combination of lime-deficiency to encourage femininity, iodine-shortage to favor fœtalization, and phosphorus-shortage to cause slow-growth (pp. 23–24). This assumed constellation of negative qualities (plus others) is invoked to define the first proto-hominid: "a hairless, hydrocephalic, achondroplasic, and therefore in most senses degenerate, variety of the big Dryopithecus. . . ." Fortunately "both in the matter of mineral economy and in cerebral capacity this first proto-hominid was greatly superior to his predecessors" (pp. 127–28). The human ego is somewhat soothed!

The author brings to bear upon problems of human origin and evolution a good working knowledge of physiology (animal and plant), biochemistry, soil chemistry, genetics (cattle breeding), and climatology. One can hardly demand that all of these varied approaches be adequately treated, yet one cannot escape the feeling that too often hypothesis is accepted for fact; too frequently the reasoning is purely teleological. In the utilization of genetics, for example, there crops up the temptation to evoke long-hidden or suppressed genes as responding to a similar environment, or to explain convergence; there is too much reversal: legs are shortened, arms lengthened, and vice versa, whenever the change in limb-proportion is to be explained (cf. pp. 127, 141 ff., 149). Again, to explain the deployment of races, following the initial transition from Anthropoid to Man, Marett hypothecates a "Northern, or Palaeanthropic, type adapted to arid country, and a Southern, or Neanthropic, sub-species adopted to the decalcified soils of the tropical rain-belt" (pp. 39, 195 ff.) It is the unequal rate of evolution in these two forms that accounts for the appearance of mixed Man-Ape types, e.g., human cranium and simian jaw of Piltdown (p. 197).

The book is thought-provoking, with many suggestions for future work. Not the least suggestive is Marett's definition of *race:* "the temporarily stable product of a mixed ancestry that, for the time being, is not being subjected to either in-breeding or intense selection" (p. 194).

The author refers to his book as "necessary bridge-work." In the same sense we must conclude that much of it is only in the nature of a temporary filling. The book impresses the reviewer as a patchwork of doubtfully related ideas woven together by strands of wish-thinking. The hypothesis is willing, but the facts are weak.

W. M. KROGMAN

WESTERN RESERVE UNIVERSITY

GENERAL

The Psycho-biology of Language. An Introduction to Dynamic Philology. GEORGE KINGSLEY ZIPF. (ix, 336 pp. $3.50. Boston: Houghton Mifflin Company, 1935.)

This work takes up various problems of language and speech, and attempts to relate them to human behavior. Linguistic change occupies a major part of the book: the theory is advanced that linguistic change takes place in response to a law of equilibrium requiring that a state of balance be maintained between the frequency of an element and its phonetic complexity. As evidence, data on the correlation of these two factors in several features of a number of languages are brought forward, and the attempt is made to show that certain historical processes make for the preservation of the correlations.

Studying the frequency of lenis unaspirated voiceless stops as compared with the corresponding fortis aspirated stops in Danish, Peipingese, Cantonese, and Burmese, Zipf finds that the former outnumber the latter in each case. I have found corroboration of this general tendency in short samples (1100 to 2400 phonemes in

extent) of Navaho, Takelma, and Dakota: the lenis unaspirated exceeded the fortis aspirated in 11 out of 13 pairs.[1] The actual ratio varies widely: in Zipf's material, from (approximately) 19:1 to 3:2; in my count, from 46:1 to 1:3. Thus, there seems to be a rather general preponderance of the less complex type, but the actual ratio is far from constant and exceptions are not absent.

But Zipf seems to consider the actual ratios of relative frequency valid to the point of using them in place of and in contradiction to ordinary phonemic method (study of phonetic and distributional facts in utterances known to be homonymous or non-homonymous to native speakers) for determining what is phonemic. This seems to be what he does (p. 321) in suggesting that the dentals and cerebrals of Singhalese be combined as "binary phonemes" because he finds the ratio of t+ṭ to d+ḍ more normal than that of t to d and ṭ to ḍ taken separately.

I gather that Zipf sees in correlations between frequency and complexity and in the presumable tendency to maintain acceptable correlations, an explanation of virtually all linguistic change. This view is untenable because, in spite of some general tendencies, the correlations seem to be obviously too diverse to show more than the vaguest general tendencies, and because there is at least one other kind of factor that definitely seems to have an effect on liguistic change regardless of or in spite of frequency or complexity. This influence is the social one, the tendency for persons or peoples in contact with one another to influence each other's behavior. The fact that geographically contiguous languages tend to have common traits is but one evidence of this important influence.

Studies of the correlation of frequency and complexity have to face at least two serious difficulties. Aside from the great care, expert discrimination, and tremendous labor involved in determining relative frequencies in adequate samples of sufficiently representative material, there is the fact that relative complexity is determinable only in the roughest terms; in many cases it is not even possible to determine which sound is the more complex, let alone to arrive at any notion of the actual ratio of complexity. Another difficulty is the great scarcity of languages on which we have adequately worked-out and accurate descriptive material.

MORRIS SWADESH

YALE UNIVERSITY

Head, Heart and Hands in Human Evolution. R. R. MARETT. (303 pp. 10s. 6d. London: Hutchinson and Co., 1935.)

This volume by the rector of Exeter College, Oxford, is an *omnium gatherum* of three Presidential Addresses, three Donellan Lectures (1933), one paper (Ritualism as a Disease of Religion) read at the International Congress of the Anthropological and Ethnological Sciences (1934), another (The Sacrament of Food) written for "Essays Presented to C. G. Seligman" (1934), together with material culled from

[1] In one case (Dakota c:c'), the lenis unaspirated is outnumbered 1 to 3. Consistency between the halves of the count seemed to indicate that the ratio would not be greatly changed if the count were extended.

Hammerton's "Manners and Customs of Mankind" (the Introduction and seven chapters), and two essays on technology from Harmsworth's "Universal History."

All of these items, then, except the Donellan Lectures and one Presidential address, have been previously published. The Lectures, under the titles "Religious Feeling," "Religious Thinking," and "Religious Acting," expound the familiar thesis of the author in regard to the earliest stage of religion, for which he now adopts the term "pre-theological." This appellation is preferred to "godless" since the latter word "has an ugly sound and might therefore prejudice fair discussion of what I venture to propound here as a problem of some scientific interest." Marett adopts a reconstructive evolutionary approach to religious origins which he implies is characteristic of anthropologists, although some uncertainty of its value lurks in his aside "for I am just as bad as the rest" (p. 82), and the subsequent remark, "however unsatisfying, it is the best that can be done on the existing evidence." Perhaps it is, if the pseudo-historical use of ethnological data is the beginning and the end of anthropology.

To American anthropologists the cavalier manner in which the author embraces the trinity of psychological categories, of which the title of the book is a reflection and from which he takes his point of departure in the Lectures, will be of interest.

> Let me proceed to consider the beginnings of religion [he says], seeking for them first and foremost in the domain of feeling. For working purposes the conception furnished by Analytical Psychology of mind as a trinity of functions, constituted by feeling, thinking and acting, will serve well enough. Moreover, Genetic Psychology treats feeling as the basic element that finds expression in acting with an intermediation on the part of thinking that does not become effective until mental evolution is well advanced. The chances are, then, psychologically speaking, that if religion corresponds to any ingrained disposition of human nature it will come out of feeling, and through feeling in acting, before thinking can get to work on it. Just as the child wants and tries to talk long before he can express himself articulately, so, I believe, it is with religious experience; which needed and sought a god, if one likes to put it that way, long before it knew him by name. So let us consider the genesis of religion first of all in the light of the impulse or set of impulses that it arose to satisfy (p. 86).

Since Marett says in the Preface that despite its somewhat miscellaneous contents the book has "unity in the sense that its working principles are throughout the same," the sample given of the author's methodology and assumptions in probing religious origins is sufficiently indicative of the treatment accorded much of the other material in the volume.

A. Irving Hallowell

University of Pennsylvania

Religion and Magic: Being an Examination of the Views of Frazer, Marett, Leuba and Swanton. Susilkumar Maitra. (Journal of the Department of Letters, Vol. 27, pp. 1–29. Calcutta: University Press, 1935.)

This paper is an excellent critique, by a philosopher, of the theories of the men enumerated in the title. There is nothing of the uncritical, receptive attitude of the layman in Dr Maitra's treatment. He has discriminated fact and interpretation, and

has judged each theory according to its own internal merits and weaknesses. He has extracted the essence of each theory and presents it lucidly. In the light of his own conclusions, the recurrent questions as to the priority of magic or religion, the antagonism between these two, the antagonism of the two to science, appear trifling and irrelevant. They seem to have arisen as a result of inadequate definitions made on the basis of "genus and species." Dr Maitra's own definition is in terms of relations—a functional definition. Religion, according to him, is an experience of recovered unity or harmony with reality, after one of estrangement or separation. "The really important factor in religion is the religious end." Any means used to this end, whether magic, prayer, mysticism, science, Buddhistic nihilism, is religion. The means chosen depend on the type and complexity of the culture.

This is an illuminating study and a valuable addition to our literature on religion.

D. DEMETRACOPOULOU

CLAREMONT, CALIFORNIA

The Origins of Religion. RAPHAEL KARSTEN. (293 pp. 12s. 6d. London: Kegan Paul, Trench, Trubner and Co., 1935.)

In this book, Professor Karsten seeks to determine the origin of (a) Religious Beliefs, and (b) Religious Cult. On the whole, he tends to agree with Tylor as to the importance of animism, though he conceives animism in a broader vein. He believes that there is no such thing as animatism apart from a belief in spirits and souls. All animatism, he tells us, derives from and is a branch of animism. Impersonal power is an abstraction, and therefore must have arisen late in the evolution of culture, since primitive man does not have the power of abstract thinking; furthermore, the evolution of thought proceeds from the concrete (spirits) to the abstract (impersonal power), not vice versa.

To him, belief in the soul is all-important in religion. Magic is associated with the idea of the soul. The worship of plants, animals, inanimate objects, as well as fetishism and ideas of supernatural power inherent in natural objects—all these arise ultimately from a belief in the soul. Man endows objects with spiritual life through a projection of his own psychical life. Totemism is based on the idea of the transmigration of souls. Spirits, demons, ghosts are either souls which "interfere in a mysterious way with the destiny of man," or have been evolved through an analogy to the soul.

The section on Religious Cult discusses such things as the treatment of disease, shamanism, priesthood, sacrifice, prayer.

The treatment of the subject is comprehensive but lacks insight. The author believes at bottom in psychic unity and set evolutionary stages, and uses the comparative method throughout, though he warns us against these in so many words. Often, the ceremony of one tribe is explained in terms of the belief of another, distant tribe, or is given a motive which the writer considers "obvious." On the whole, I feel that though certain theories have been aired and patched, our understanding of religion has not been furthered through this study.

D. DEMETRACOPOULOU

CLAREMONT, CALIFORNIA

Primitives and the Supernatural. LUCIEN LÉVY-BRUHL. [Trans. by Lillian A. Clare.] (v, 405 pp. $5.00. New York: E. P. Dutton, 1935.)

Professor Lévy-Bruhl's latest book is in large part a compilation of examples on the following topics: amulets, charms, and talismans; omens, good and bad luck; baneful influence of ill will and rites for propitiating persons, plants, objects, and animals; worship of ancestors and the dead; witchcraft; transgressions and incest; defilement and purification in connection with mourning, homicide, hunting, intercourse, childbirth, menstruation, etc. Examples are drawn principally, but not exclusively, from eight or ten standard ethnographies on Australia, New Guinea, Dutch East Indies, Africa, and the Eskimo. The thesis which justifies this collection of disparate data runs briefly as follows: primitives, because of their pre-logical cast of thought, do not categorize phenomena factually but emotionally; to group ethnologic data in "scientific" categories is a distortion; fear is the one basic affective category which underlies all of the behavior and the belief connected with the topics discussed in this volume; therefore it is not surprising to find similar rites used in very different connections since the psychological motivation is constant; therefore also, primitives are traditionalists because sanctioned behavior in the past has preserved the group from the things it feared; this attitude benumbs the intellect. In other words, Professor Lévy-Bruhl is suggesting psychological causes, or at least concomitants, for his formulation of the pre-logical.

I believe that this is a fair statement of the underlying principles in a book which is not always distinguished for its clarity. There is much which is suggestive if not provenly valid in the thesis. Emotional rather than intellectual categorizing of primitive data might lead to interesting results. For example, cultural elements like the scratching stick, seclusion, and the drinking tube have wide and scattered distributions in the New World, due presumably to historic events about which we are at best only able to make conjectures. These traits appear in a whole series of cultural complexes like shamanism, menstrual observances, vision quest, and so on. Might not a working assumption be that these elements, everywhere in solution, have crystallized out into complexes with very different cultural functions under the influence of an emotion common to all the complexes? In other words, there are series of elements in the cultural realm associated with emotions in the psychological realm. The cultural elements are used as devices for dealing with emotional situations. This type of approach might furnish a *partial* explanation of puzzling similarities between different complexes and between the same complexes widely separated in space. It fails to explain the presence of the elements and their association with given emotions, but it might elucidate the problem of similar elements in disparate institutions.

CORA DU BOIS

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DISCUSSION AND CORRESPONDENCE

SOME WIDER OBLIGATIONS OF THE FIELD ETHNOLOGIST

In his discussion of "Africa: What Do We Know Of It?" Edwin W. Smith suggests[1] that the complaint of geographers who urge that ethnologists working the African field have provided the world with less geographical knowledge than one has a right to expect, is not unreasonable. I know nothing from first hand of this specific situation, but I do think the implication of the complaint is worth considering. From it I would derive the thesis that although the anthropologist should be the master of his own techniques in the study of primitive culture, nevertheless he has certain obligations to science as a whole (if he is to present a well rounded survey of his chosen native society) which inevitably make him the servant of many sciences. I think this thesis is valid, and I wish to make a plea for a greater recognition on the part of anthropologists of their obligations in this respect.

In spite of theories and schools to the contrary, I assume it is the task of the anthropologist to study all aspects of the life of the people with whom he is directly interested. This means, of course, that he does not confine himself exclusively to a rather narrow definition of his field. It is not uncommon for the fieldworker to study little else than the language, social organization, religion, and folklore of his people. I do not quarrel with personal tastes but I would suggest that this limitation of interest is not good science. It has produced capable monographs of certain aspects of primitive cultures but for all the reader or the fieldworker is concerned, the tribe under discussion may be living in a physical and environmental vacuum. There is rarely any information to the contrary. Yet it is often the case that the anthropologist, with considerable expenditure of time and money, penetrates into obscure corners of the world. The expense of an expedition may be such that it is impossible to send with him a physical anthropologist and a natural scientist. Yet when the anthropologist completes his field study and his report, how often is it that the general sciences or even physical anthropology are the wiser for his experience? Rarely, I think. But it still remains true that had the anthropologist been broader in his interests in the first instance, not only would cultural anthropology have gained, but other general sciences as well would have received information (crumbs perhaps, but valuable crumbs that could surely be fitted into a general or particular scheme of knowledge).

Illustrations may make my meaning clear. I presume that physical anthropology would welcome all the data it could get. Rarely does the ordinary schooled worker acknowledge this interest even though he penetrate into the wilds of New Guinea or wander among the mazes of South America. He assumes anthropometry is outside his province in the first place and may produce the further rationalization that anthropometric technique is too difficult to acquire. Any physical anthropologist would,

[1] Journal, Royal Anthropological Institute, Vol. 65, pp. 1–81, 1935, p. 4.

I think, vigorously oppose the second suggestion and the ethnologist has no reason to assume the first. A few demonstrations in the handling of instruments and a general familiarity with simple required measurements will give the ethnologist a sufficiently good technique to enable him rapidly to secure a series of measurements that would be extremely valuable. The series may well be turned over to the specialist for analysis. But the material is collected whatever happens to it. If not immediately, at least some day, it will be of value in closing a gap in otherwise complete knowledge. Too often the ethnologist feels that he is not expected to be interested in anthropometry. My point is that whether he is interested or not, he should willingly assume the obligation of making measurements. Only by coöperation can the sciences of man advance on a united front. Even the student interested in the study of personality differences will not find anthropometry unrewarding. There is much to be learned from close observation of subjects under the test situation. A careful eye will discover subtleties of cultural and individual reaction that may be followed up with advantage in later and more intimate study. A well known anthropologist once told me that on his way to, say, Timbuctoo, he was so bored by the prospect of having to make physical measurements that he quietly dropped his set of instruments overboard one night and explained later to inquiring authorities that they must have gone astray in transit. He felt his action was humorous. I felt that in spite of his reputation as an anthropologist, his appreciation of the spirit of science and scientific method was not even rudimentary.

Some fieldworkers are fortunate in studying in areas where complete geographical and climatological data are already available. That they sometimes make rare use of them is another matter, though one fails to see how a study, intensive or slight, of the economic aspects of a primitive culture can be complete without the use of material bearing on the relationship between a people and the land they live in. Less fortunate workers find that there are no geographical data available for their area. Rarely do they see the obligation to provide this, not only to make their own study complete, but to assist geographers in general. Again, did they recognize their responsibility, it would not be hard to implement. A half hour lesson in the reading of climatological instruments and study of the Beaufort wind scale would enable any fieldworker or an easily trained native assistant to keep adequate record of weather conditions with little expenditure of time. Such records, even if continued for but a short time, enable the ethnologist vividly to suggest seasonal changes; when correlated with seasonal changes of economic activity they have the value of presenting factually what would otherwise be less well said. Other geographical knowledge may often be obtained from a simple day to day record: material on the rhythm of vegetation and animal life, the regime of rivers and swamps, the modification of natural vegetation by man, and the influence of environmental factors on the material life of the people—these are important and easily observable phenomena.

In dealing with the economic patterns and material culture of any society a detailed and recognizably scientific knowledge of the flora and fauna of the environment is surely desirable. In some areas the flora and fauna are well known; in others, not so definitely. Again it should be of value for the anthropologist to procure such

specimens as will complete his own report and at the same time assist the botanist or zoologist in studying plant or animal distributions. The collecting of botanical specimens is not difficult. Native assistants are often only too anxious to help. Even if specimens are limited only to the plants and trees that have an economic, medicinal, or social value to the native people, this should of itself provide sufficient incentive to make such a collection. Any competent botanist can supply scientific identifications later, and any laboratory an analysis of plants believed to have medicinal value. In the collection of zoological specimens difficulties are naturally much greater and treatment of specimens for preservation may often require more technique than the anthropologist may legitimately be expected to possess. But insects are not hard to collect, nor are the smaller fish. In both cases preservation is easy. This is true also of reef, beach, and mountain fauna like sea and land shells. They are easily secured, easily preserved, and a factual knowledge of them will often add clarity to the report on fieldwork.

I do not touch on the problem of where instruments, measuring apparatus, and collecting bottles are to come from in the first instance. There is no reason why the anthropologist should be expected to equip himself from his usually inadequate budget. But coöperation with university departments or museums will provide what is needed with willingness and alacrity.

I am still serious when I suggest that it should not be without the province of the fieldworker to know enough of elementary astronomy and star identification to enable him adequately to test his informants' knowledge of these matters. Contrary to opinion such knowledge is not difficult to acquire. By its aid the fieldworker will be better able to appreciate the value to the people he is studying of their own knowledge, often not inconsiderable, of the movement of stars and planets and their relations to seasonal change, their value in navigation, folklore, and legend. In my own experience idle gossip with informants when sitting outside at night may well be turned towards the stars and not only adequate identifications but much related knowledge secured with relative ease.

I believe the same values hold in a slightly different sphere for an elementary knowledge of anatomy and physiology. Only with the background of this knowledge is it possible to study with most efficiency native beliefs and practises in regard to medicine, diagnosis and treatment of disease, practises relating to childbirth and initiation. I do not suggest that every anthropologist should be a properly qualified student of medicine. That would sound ridiculous but it would be far from fantastic. What would be of value to the fieldworker would be that practical knowledge which would enable him to use with ease and freedom medical dictionaries, anatomical and physiological charts and diagrams.

I do not feel that the objection to this suggested widening of the scope of fieldwork which is based on an assumed lack of time has any general validity. Few ethnologists living among a native people can honestly assert that they work for the whole day every day with formal sessions. There are always odd hours and odd days when informants are not inclined towards formal discussions. It is during these times and during other odd moments, when change of activity and thought is a

welcome relief to both worker and informants, that it is possible to acquire borderline information without undue tears.

The implication of my thesis then is that anthropologists tend to have too narrow an outlook and too limited a technique. It is convenient but ostrich-like to assume that a primitive culture consists of little other than its broad social organization, its religion, its language, and closely related subjects. This view enables one to be a "cultural anthropologist" certainly, but only at the cost of blissfully neglecting as unimportant whole aspects of primitive culture. Schools of anthropology are at fault when their training is unduly narrow. This is perhaps but a reflex of the personal idiosyncrasies of teachers. But I see no valid reason why personal biases should be projected as if they alone embraced the whole field of anthropology with the implication that it is slightly indecent to be interested in any other aspect of primitive culture. We would realize the futility of this if a teacher implied that all linguistics was useless, or all archaeology a waste of time. Why not recognize then that a knowledge of geographical and climatological data, of botany, of native nature science, of anthropometric measurements, of simple astronomical and medical principles are also of value in preserving for present or future study aspects of primitive society that are no more unimportant to the native himself, or to science at large, than information about the kinship system or the functioning of marriage regulations?

One feels in this connection that there is a much wider outlook to be gained if the student has the opportunity to work in close connection with a museum that is interested in covering not only the anthropological field but is concerned to utilize also the services of botanist, zoologist, physical anthropologist, and entomologist for a concerted attack on a specific problem or on a large ethnic province. In this way the anthropologist realizes the values of coöperation between the general team of sciences. He can understand that in order to work efficiently and with a minimum waste of effort and money, coöperation is vitally necessary that each may contribute according to his opportunity field information that will help establish, for instance, botanical or racial distributions, and otherwise help to build up a generic picture of many different cultures within the one geographical area. Polynesia comes to mind here, Melanesia as well, or Papua, New Guinea, or Indonesia. These are all areas that can well afford to develop or further a coöperative technique of scientific research that will be of mutual benefit to each science. The Bishop Museum has splendidly sketched the outline of such coöperative research in Polynesia. Its work has also suggested that though it is fashionable to ridicule "Notes and Queries" in some anthropological circles, nevertheless digested with a grain of common sense the viewpoint from which the "Notes" were compiled will go far to help the anthropologist understand more fully the culture which he wishes not only to make his own but also to present in intelligible manner to the world of his scientific co-workers.

ERNEST BEAGLEHOLE

HONOLULU, HAWAII

NOTE ON PIMA MOIETIES

According to the data of Russell and Parsons,[1] the role of moiety and gens among the Pima was so weak—whether from the outset or through a process of attenuation—that it is difficult to point to anything in which these social frames did function. There was, to be sure, the use of gens names when the child addressed the father. There was also the teasing of people belonging to different moieties; bragging; and looking upon the red or grey "cowkiller" insect as a sort of moiety pet or badge.

In pursuing on various occasions studies of music and language among the Pima of the Gila River reservation, I received further information and comments on the subject from my main informant, Thomas Vanyiko of Sacaton, Arizona. These are offered here in view of the scarcity of our information on Pima social organization. Vanyiko is now about eighty years old, a story-teller and singer, considered by the modern Pima an authority on old Pima culture. The statements were checked with him a number of times. Since so few old Pima are left who may be competent to consult on the matter, it may not prove possible to check the information with others.

In olden days, before my time, the moieties played against each other in the games. This is what I heard. It was done so there wouldn't be any cheating. It was done in the Pima guessing game,[2] perhaps also in the dice game. It was done also in the foot races. There too it was done to prevent cheating; sometimes they tried to buy out a runner, or to scare him.

Naturally, these functions of the Pima moiety are not necessarily originally connected with the Pima moiety organization, but may represent the diffusion of a moiety alignment on occasions of gambling and racing only.

The moieties came to be in the following way. Both Coyote and Buzzard were great warriors. Some people grouped themselves around the one, in fighting or in hunting the deer, some around the other. Some asked Coyote for bravery in war, some asked Buzzard for it.[3] So there was a kind of rivalry between the two groups, and they began to reckon themselves apart.

Buzzard is red,[4] and the Buzzard people are red. Coyote is white,[5] and the Coyote people are white. This is because the ceremonial father[6] of Buzzard was red whirlwind, the ceremonial father of Coyote was white whirlwind. Buzzard could spread heat; Coyote could not stand heat. Coyote could spread cold; Buzzard could not stand it.

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[1] Frank Russell, The Pima Indians (Twenty-sixth Annual Report, Bureau of American Ethnology, pp. 3–389, 1908); Elsie Clews Parsons, Notes on the Pima, 1926 (American Anthropologist, Vol. 30, pp. 445–64, 1928).

[2] That is, the cañute, reed game, as distinguished from the Yuma guessing game which the Pima took over, where the hiding is done with the hands held behind the back.

[3] I.e., they asked them for dream revelations in which to acquire bravery or luck in war.

[4] In songs and myths Buzzard is always referred to as "Yellow Buzzard."

[5] "Grey" is also mentioned in songs; "Grey cross-cousin."

[6] The old man delegated to care for a warrior who had killed an enemy, while the warrior was in the seclusion of the purification period. See J. William Lloyd, Aw-aw-tam Indian Nights (Westfield, N. J., 1911), pp. 90–94.

All the animals are either red or white. The Bear is red, for instance. That's why one must tell him, "I am red," if one meets him.[7] Everything red is red people; everything white is white people.

The term vĭ'mĭgar [cross-cousin] is not used by itself for the moieties. One does say, "coyote cross-cousin," or "buzzard cross-cousin." But one does not address this way, or with the word "cross-cousin," a member of the opposite moiety. The terms are terms of respect which one uses if he speaks about the other moiety; they refer primarily to Coyote and Buzzard, and then to their people, who are the two moieties.

Vanyiko's explanation of the use of the term "cross-cousin" for the moieties went back to the Creation myths. After the Flood, the Creator, Elder Brother, and Coyote have a discussion about which of them emerged from the Flood first, and should thus be considered senior. Coyote's claims are dismissed, but the two other protagonists tell him: "All right, you'll be our cross-cousin!"

The moieties—or the gentes—did not have anything to do with ceremonies or dances: they were all mixed up. In war they were all mixed up. A moiety or gens did not own any stories that the other moiety or gentes could not tell. There was no office for which people of a certain moiety or gens had to be chosen. It just happened that the last chiefs were all from the Buzzard people, as the office happened to get into the Azul family, who are Buzzard people. There was never a rule that people of one moiety had to be buried by people of another moiety.[8]

Olson's study of clans and moieties gives under "Concepts adhering to moieties" the following entry for the Pima and Papago: "Red side linked with earth, white side with underworld."[9] To my knowledge, the only pertinent item in the literature is Russell's reference to the migration legend: "The Red People are said to have been in possession of the country when Elder Brother brought the White People from the nether world and conquered them. . . ."[10] The legend, however, speaks of the five Pima gentes all emerging together. At any rate, the association seems very vague and tenuous, and is so in Pima thinking; so that it is hardly justifiable to speak of a "concept" associated with the moieties on the basis of this evidence.

GEORGE HERZOG

YALE UNIVERSITY
NEW HAVEN, CONN.

AN ADDED NOTE ON THE SCOTTSBLUFF QUARRY

The recent progress in the study of the Folsom complex (see, for example, Roberts, Howard, Antevs, and others) has contributed much new information on the subject.[1] It is in the light of this additional knowledge, and in the endeavor to keep

[7] See Russell, p. 262.

[8] The statements in this paragraph were all in answer to my questions.

[9] Ronald L. Olson, Clan and Moiety in Native America (University of California Publications in American Archaeology and Ethnology, Vol. 33, No. 4, 1933), p. 402.

[10] See Russell, p. 197.

[1] Besides Dr. Roberts' more recent unpublished material, and the as yet unpublished geological studies of the Lindenmeier site made by Dr Kirk Bryan.

the record as free from inaccurate details as possible, that we wish to offer a few short comments on our previous paper in the AMERICAN ANTHROPOLOGIST.[2]

It has become evident from excavation at Fort Collins, Colorado, that true Yuma blades are almost entirely lacking at this site.[3] In addition, definite occupation levels revealing Yuma artifacts and "Folsom-like" points[4] completely lacking grooves have since been discovered in old deposits in western Nebraska. Flint from the latter sites, deeply buried under what appears to be a Pleistocene lake bed, is similar in composition to that from the Scottsbluff bison quarry (whose flint was not of a very common texture for that neighborhood) and would seem to add supporting evidence that the latter quarry is not a fluke of redeposition.

One of the points from the new site is to be featured by E. H. Barbour and C. Bertrand Schultz in a paper now going to press.[5] It is similar to what Renaud has classified as Yuma type 2b. This finely worked, but ungrooved "Folsom"[6] blade suggests that what the writers assumed, in their report on the Scottsbluff quarry, to be merely an atypical and unfinished Folsom blade (lacking the groove) is actually an ungrooved *stage* of Folsom type development, accompanied by typical Yuma points. Since Dr Roberts has found, so far, but one true Yuma blade at the Fort Collins site, it would seem that, though undoubtedly related, the grooved Folsom blades *do* bear some time sequential relation to the Yuma type. In other words, if they are related, as they seem to be, our assumption of more or less exact contemporaneity for Yuma-Folsom artifacts[7] should be changed to a statement of only partial contemporaneity. As to which may precede the other the tendency among archaeologists the last few months has been to assume that the Yuma type is a later—even late—innovation within the Folsom complex. However, the new Nebraska finds, which suggest extreme antiquity, may reverse the sequence again in favor of a more ancient dating for the Yuma types, as Renaud has long suggested. All that the writers wish to suggest at the present moment is that there seems not to be an *exact* contemporaneity, and that these "Folsom-like" artifacts without grooves[8] seem

[2] C. Bertrand Schultz and Loren Eiseley, Paleontological Evidence for the Antiquity of the Scottsbluff Bison Quarry and its Associated Artifacts (American Anthropologist, Vol. 37, pp. 306–18, 1935).

[3] "The tip of a true Yuma" (Dr F. H. H. Roberts, Jr., *in litteris*).

[4] See footnote 6 below. Under Dr Renaud's system of classification these would all be Yuma types.

[5] Paleontological and Geological Evidence Relating To Yuma-Folsom Artifacts in Nebraska (Bulletin, Nebraska State Museum, No. 45, in press).

[6] We use quotation marks with this term because this type is regarded by Renaud as a classifiable Yuma blade. Certain of these more Folsom-like points are by others not yet admitted as true Yuma artifacts, and hence the utmost care is necessary to avoid confusion in terminology.

[7] Schultz and Eiseley, *op. cit.*

[8] They fall approximately into Renaud's Yuma types 2a and 2b, but would be what Howard has designated Folsom-like except that they lack even a trace of a groove. It is, however, possible, judging from points in collections in the vicinity, that when the new sites are fully excavated, true Folsom-like points as defined by Howard in "Evidence of Early Man in

definitely associated with true Yuma blades. But the new and extensive sites to be excavated in the coming season promise to throw much light on the problem. Further remarks at this time would be pure conjecture.

The bison problem is another upon which we should like to offer comment. It has been suggested by Mr J. D. Figgins[9] that there is a mixture of *Bison oliverhayi* with *Bison bison* at the Scottsbluff site, as well as an accompanying "modern" artifact.[10] Leaving aside all mention of the highly improbable nature of such a coincidence and the tendency to minimize certain points which we made in regard to skeletal articulation, we should like to point out:

First, that the so-called "modern" point has never been definitely shown to be a product of any associated recent site, and that, in addition, it bears certain characteristics which we have previously commented on, which take it out of the class of true notched points.[11]

Second, that the bison material (of which Figgins had access to only two specimens)[12] does not justify his claim that both *B. oliverhayi* and *B. bison* are mingled in the quarry. It is to be remembered that we provisionally referred these bison to *occidentalis* Lucas. Time has justified us in this caution. Later studies carried on through the generosity of Dr Barnum Brown and the American Museum of Natural History, who allowed the Nebraska State Museum access to the original Folsom bison, have shown that the male skull featured in our previous article resembles the Folsom skulls.[13]

Most of the skulls from the Scottsbluff Bison Quarry were those of females, along with several from immature individuals. These female skulls also resemble those of the same sex from Folsom. All of this will be sufficiently discussed in the forthcoming paper by Dr Barbour and Mr Schultz. Our purpose here is merely to indicate that the more recent and intensive studies of the Scottsbluff bison quarry justify the reclassification of these animals as *Bison antiquus taylori*. It is a well established point of paleontology that the promiscuous naming of different species out of a single quarry, particularly from one possessing an obvious age-range in individuals, is a highly dubious procedure.[14] In such forms as the American bisons, where identifica-

North America" (Museum Journal, Vol. 24, 1935, Philadelphia), p. 112, may yet appear. The reader must realize that we still possess too few specimens to generalize with surety.

[9] J. D. Figgins, Folsom and Yuma Artifacts, Part II (Proceedings, Colorado Museum of Natural History, Vol. 14, No. 2, 1935), p. 7.

[10] Found, incidentally, six feet back from the face of the bank.

[11] Tanged points made their first known appearance in the late Mousterian of Europe. This is not said with any idea of comparison, but it is sufficient to indicate that, in itself, a tang is no guarantee of modernity!

[12] One of which he designated as *B. oliverhayi*.

[13] Dr E. H. Barbour and Mr C. Bertrand Schultz have gone into this in great detail, with tables of comparative measurements, in their forthcoming paper. The appellation *antiquus* is a change in nomenclature, not a reassignment of species, to adjust to the established priority of *antiquus* over *occidentalis* as a specific name for the southern bisons of this type.

[14] W. D. Matthew, Critical Observations on the Phylogeny of the Rhinoceroses (University of California Publication, Bulletin, Department of Geological Sciences, Vol. 20, No. 1,

tion is strongly dependent upon the securing of adult male specimens,[15] the writers do not feel that identifications can be multiplied on such a basis as that suggested by Figgins.

In summary, the writers would merely say that the extensive new site from beneath a possible Pleistocene lake bed, already examined by competent authorities, and a preliminary report of which has been given at the meeting of the American Paleontological Society in New York recently, should go far to justify their assertions of the antiquity of the Scottsbluff quarry. They believe also that some sort of sequential relationship between Yuma and Folsom types now seems definite, but which is the earlier, and the part played by the Folsom-like forms, is still a subject for investigation. In addition, we take exception to calling one point "modern" simply because it is not typical of what has come to be considered as Yuma. This seems highly questionable in view of the unknown nature of a vast complex recognized from only one large excavated campsite to date. As for the geology of the Scottsbluff site, its undisturbed nature is attested to by Dr Paul MacClintock of Princeton, who examined the site during the past summer.[16]

Mr Figgins, it is true, makes some point of our reference to chunks of Tertiary sandstones and clays as "supplying adequate proof of redeposition."[17] If this were true these fragments should be indiscriminately deposited from top to bottom; a point which is sufficiently disposed of in our previous paper, as is easily seen by referring to the photograph (fig. 1) therein. Since Mr Figgins was not of the party that excavated the site and has had access only to the specimens to which we have referred, we find it difficult to discover on what basis he so confidently implies that all the articulated material in the quarry is to be attributed to the inclusion of modern bison "inextricably associated with the extinct *oliverhayi*." It is our opinion that this sort of hair-splitting over individual variation could be invoked over any bison quarry which happened to contain numbers of individuals of both sexes and all ages.

The writers are quite willing to rest their case on the forthcoming developments to which they have referred, and merely urge a careful and fair approach on the part of the reader through what must often seem a mass of conflicting detail. A whole new situation in American archaeology can hardly be clarified, nor its ramifications seen, in a few months' time.

C. BERTRAND SCHULTZ
LOREN C. EISELEY

NEBRASKA STATE MUSEUM
LINCOLN, NEBRASKA

p. 6, 1931); Range and Limitations of Species as Seen in Fossil Mammal Faunas (Bulletin, Geological Society of America, Vol. 41, pp. 271–74, 1930).

[15] Tooth structure has so far proved of questionable value in the identification of the bisons of the late Pleistocene.

[16] Paul MacClintock, Report in the 1935 Year Book of the Carnegie Institution of Washington, D. C. (in press). See also A. L. Lugn, The Pleistocene Geology of Nebraska (Bulletin, Nebraska Geological Survey, No. 10, 1935), p. 188.

[17] J. D. Figgins, Folsom and Yuma Artifacts (Proceedings of the Colorado Museum of Natural History, Vol. 13, p. 3, 1934).

THE WITOTO KINSHIP SYSTEM

In surveying recently the ethnographic sources on the Witoto of northwestern Amazonia, I encountered partial lists of kinship terms in the works of Farabee,[1] Hardenburg,[2] Koch-Grünberg,[3] Preuss,[4] Schmidt,[5] and Whiffen.[6] The lists are clearly independent, but they supplement and confirm one another very well, although that of Schmidt reveals a number of errors. It seems worth while, therefore, to put the various lists together, especially since that of Preuss, the most nearly complete, is mainly scattered through a general vocabulary. Diacritical marks will be largely omitted, and the authors cited by initial.

A. *Grandfather* (cf. also C2 and D1 below). 1. marama, "grandfather" (W); mogama, "grandfather" (K); mokama, "stepfather" (P). These may or may not be different renderings of the same term. 2. mota uaikika, "grandfather, grandmother" (S). Perhaps a descriptive term based on motai, "father" (C1), and the term for "old man," uvaikisa (P), oekesa (K).

B. *Grandmother* (cf. also A2 and G1). 1. einyoko, "grandmother" (W). Apparently a derivative or variant of einyo, "mother" (F2). 2. haino, "grandmother" (K). Perhaps a variant of einyo, "mother" (F2).

C. *Father* (cf. also F1). 1. motai, motaika, "father" (P); motae, "father" (K); mota, "father" (F). 2. moma, momaka, "father, ancestor" (P); moma, "father" (W); mon, "father" (H). According to Preuss (Vol. 2, pp. 732, 719), the term mo is used vocatively for "father" and (man speaking) for "son, son-in-law, stepson, foster son," while -ma is a masculine suffix.

D. *Paternal uncle.* 1. usuma, "father's brother, old man" (P); iusuma, "uncle, grandfather" (F); hisaima, "uncle" (K). 2. iso, "father's brother" (W); iso, "uncle, old man" (P).

E. *Maternal uncle.* hinobidyama, "mother's brother" (P); hinobiyama, "uncle" (S); vichama, "mother's brother" (W). The prefix hino- confers the meaning of "standing outside" (P).

F. *Mother* (cf. also G1 and Q1). 1. aitai, aiitai, "mother" (P); aitai, "father" (S). A derivative of ai, "wife" (P). The rendering "father" by Schmidt is apparently an error. 2. einyo, enyo, nyo, "woman, mother" (P); einyo, "mother" (W); eño, "mother" (H); nyonyo, "mother" (P); ñoño, "mother" (F). According to Preuss (Vol. 2, p. 739), the term nyo is used vocatively for "mother, daughter, daughter-in-law, niece."

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[1] Indian Tribes of Eastern Peru (Anthropological Publications, University [of Pennsylvania] Museum, Vol. 10, 1922), pp. 148–49.

[2] The Putumayo (London, 1912), p. 150.

[3] Les Indiens Ouitotos (Journal, Société des Américanistes de Paris, n.s., Vol. 3, 1906), p. 166.

[4] Religion und Mythologie der Uitoto (Göttingen, 1921–22), Vol. 1, pp. 161–62; Vol. 2, pp. 683–753.

[5] Die Uitóto-Indianer (Journal, Société des Américanistes de Paris, n.s., Vol. 7, 1910), p. 65.

[6] The North-West Amazons (London, 1915), p. 300.

G. *Paternal aunt.* 1. usunyo, usunyoka, "father's sister, older woman living with another sib" (P); iusunu, "aunt, grandmother" (F); usunyo, "mother" (S); usu, "aunt" (K). The rendering "mother" by Schmidt is probably an error. 2. ita, "aunt" (P); ita, "aunt" (S). Conceivably a term for "maternal aunt," although there is no evidence.

H. *Brother* (man speaking). ama, "brother (m. sp.), male cousin within the sib (m. sp.)" (P); ama, "brother (m. sp.)" (W); ama, "brother" (K); ama, "brother" (F); ama, "brother" (H).

I. *Brother* (woman speaking). 1. iyo, iiyo, iyoka, "brother (w. sp.), clansman (w. sp.)" (P); iyo, "brother" (H); tio, "brother (w. sp.)" (W); ugo, "brother" (S); uyo, "male or female cousin" (S). 2. iima, "man, brother (w. sp.)" (P). Apparently the usual term for "man" or "male," variously recorded as eimie, eima, imie, iima (P); eima (K); igma (F); rema (W).

J. *Sister* (man speaking). mirinyo, "sister (m. sp.), clanswoman (m. sp.)" (P); mirinyo, "sister (m. sp.)" (W); mireno, "sister" (K); minenyo, "sister (m. sp.)" (P).

K. *Sister* (woman speaking). evunyo, "sister (w. sp.), clanswoman (w. sp.), woman who has married into speaker's sib (w. sp.)" (P); epunyo, "sister (w. sp.)" (W); awunyo, "sister" (S); bunu, "sister" (F); abunyo, "woman" (S).

L. *Son* (cf. also C2). 1. hito, hitoo, hitoka, hitooka, "son" (P); hito, "child" (W); hito, "son" (F); hitoo, "son" (K); hitoo, "grandson" (S). Schmidt seems again in error. 2. konirua, "son" (S); konirue, "young man" (P); konirue, "young man" (K).

M. *Daughter* (cf. also F2). 1. hisa, hisai, hisahe, "small child, boy (rare), girl, daughter" (P); hisa, "daughter, girl" (F); hisa, "daughter" (K); hisaka, "daughter" (P). 2. rinyohisa, "daughter, girl" (P); rinyosa, "girl" (W). A compound of rinyo (Q2) and hisa (M1). 3. riñoña, "daughter, woman" (H); rinyona, "women" (W); rinyona, "women" (S). Apparently a derivative of rinyo (Q2).

N. *Nephew.* 1. eneise, "brother's son, sister's son, stepson" (P); enasai, "brother's son" (W). 2. komona, "sister's son" (W). 3. itsotai, "nephew" (S).

O. *Niece* (cf. also F2 and Y). 1. eneisenyo, beneisenyo, "brother's daughter, sister's daughter" (P); enasanyo, "brother's daughter" (W). 2. momonio, "sister's daughter" (W).

P. *Husband.* ini, inika, "husband" (P); ini, "husband" (S); ini, "husband" (F); une, "husband" (W).

Q. *Wife.* 1. ai, aii, aika, aiika, "wife" (P); ai, "wife" (F); ei, "wife" (W); ei, "mother" (H); e'i "mother" (F); eikei, ekei, "mother" (K). The term may mean "mother" as well as "wife," although the better authorities favor the latter, or there may be two terms. 2. rinyo, "wife" (S); rinyo, rinyoka, "woman, girl, clanswoman" (P); rinyo, "woman" (W); rino, "woman" (F); rino, "woman" (K). Apparently merely the term for "woman." (Cf. M3).

R. *Father-in-law.* hifai, "father-in-law" (P); hifai, "father-in-law" (S).

S. *Mother-in-law.* hifainyo, "mother-in-law" (P); hifaunyo, "mother-in-law" (S).

T. *Brother-in-law.* oima, "brother-in-law, wife's clansman" (P); oima, "brother-in-law" (W); oma, "brother-in-law" (S).

U. *Sister-in-law.* 1. oinyo, "sister-in-law, wife's clanswoman, woman who has married into wife's clan" (P); oinyo, "sister-in-law" (S). Reciprocal with T (P). 2. ofainyo, "sister-in-law (m. sp.)" (P); ofanyo, "sister-in-law" (W). 3. rifainyo, "sister-in-law (m. sp.), co-wife (w. sp.)" (P).

V. *Son-in-law* (cf. also C2). 1. nyekore, "son-in-law" (P). 2. hiruiraida, "son-in-law" (S). Apparently derived from hiruirei, "to marry" (cf. Preuss, Vol. 2, p. 711).

W. *Daughter-in-law* (cf. also F2). 1. mio, "daughter-in-law" (P). 2. ota, "daughter-in-law" (S).

X. *Stepfather.* mokama, "stepfather" (P). (Cf. A1.)

Y. *Stepmother.* aikanyo, "stepmother, foster mother" (P); akanyo, "niece" (S). Schmidt is perhaps again in error.

Z. *Stepson* (cf also C2 and N1). erekama, ereikama, "stepson" (P).

Z′. *Relative by affinity.* idyareima, "member of a sib allied to that of the speaker by marriage" (P).

The system, as presented above, is defective in specific terms for mother's sister, cross-cousins, and grandchildren. It is consistent with the social organization of the Witoto, who are divided into patrilineal, patrilocal, exogamous sibs, each occupying a communal dwelling in its own separate settlement. Kirchhoff,[7] who derives his information from Farabee, Preuss, and Whiffen, though he cites only a few terms, correctly points out the important influence of the sib or settlement on the kinship system: "The kinship terms—apart from those for parents and children—fall into two groups: they designate either persons born in one's own settlement or those born in other settlements, i.e., those with which one's own is related through marriage."

GEORGE PETER MURDOCK

YALE UNIVERSITY
NEW HAVEN, CONN.

A REPLY TO "A SURVEY OF SUMATRA"

To the Editor:

The January-March issue of the AMERICAN ANTHROPOLOGIST of the present year contains an article by Raymond Kennedy entitled "A Survey of Sumatra" (pp. 145–48) which is a review of a recent book by Prof Heine-Geldern and myself on the peoples of Sumatra.[1] Since a number of errors were indicated by the reviewer in my section of the book, the review is of service both to the general reader and the authors.

[7] Die Verwandschaftsorganisation der Urwaldstämme Südamerikas (Zeitschrift für Ethnologie, Vol. 63, 1931), p. 174.

[1] Sumatra: Its History and People; [including] The Archaeology and Art of Sumatra (Wiener Beiträge zur Kulturgeschichte und Linguistik, Vol. 3, Vienna, 1935).

On the other hand, I would like to take this occasion to protest against what I consider undue severity on the part of the reviewer. At times sentences were abstracted from their proper context and criticised on their own merits. Thus I am accused of saying on page 82 that the Batak house type is attributable to Hindu influence. As a matter of fact I make no discussion of Hindu influence on Batak house types on page 82. The subject is first broached by Prof Heine-Geldern on pages 320–21. Next I am accused of saying on the same page 82 that the Batak had neither shamans or priests before the days of Hindu influence. I did make this statement. But throughout the book I am using the Mentawei islanders and other low cultured peoples as checks. The Mentawei islanders had no real priests or shamans, and I therefore assumed that real priesthood and shamanism were derived from Hinduism, or at least from Hindu influence. The same rule holds true for iron working. Dr Kennedy believes that statements such as these are tenuous, and in his opinion, unsubstantiated hypotheses.

Naturally every reviewer is entitled to his own opinions, and the more opinions there are on a given subject, the better it is for the advancement of scientific research. Dr Vroklage, for example, takes quite a different point of view from Dr Kennedy relative to Hindu influence in Sumatra. Dr Vroklage in his review of my book praises it for having been written from a cultural historical standpoint, and not merely with an evolutionary point of view.[2]

Perhaps the most original contribution which I tried to make to Dutch ethnography, and seemingly the one least appreciated by Dr Kennedy, is my assumption that sib organization did not develop in situ in Sumatra, but was diffused from the mainland. The linguistic substantiation for this theory was first presented in the AMERICAN ANTHROPOLOGIST and Anthropos.[3]

According to my line of reasoning, since the Indonesian term for mother's brother is mama, and since this is a Tamil and Sinhalese term for mother's brother, sib organization came with the term from southern India to Indonesia. In other words, where you have an identity in trait and an identity in nomenclature the chances for diffusion of the trait are strong. Dr Kennedy, however, does not agree with my theory, but cites Adriani in support of the contention that the word mama developed everywhere separately in Indonesia from the word for father, ama, by a process of reduplication. This of course is typical evolutionary reasoning. But how can the word mama evolve among the Sinhalese and Tamil from the word ama, when the Sinhalese word for father is not ama but tātā, and the Tamil term for father is appu or aiya?[4] My general hypothesis is not contradicted by the fact that the word

[2] "Het is een zeer verdienstelijk werk van Dr. Loeb geweest, om met zin voor cultuurhistorische ontwikkeling en niet alleen voor de zoogenaamde evolutie" (Anthropos, Vol. 30, 1935, p. 596).

[3] American Anthropologist, Vol. 35, pp. 16–50, 1933; Vol. 36, pp. 26–56, 1934; Anthropos, Vol. 28, pp. 649–62, 1933.

[4] A. M. Hocart, The Indo-European Kinship System (Ceylon Journal of Science, Section G, Vol. 1, Part 4, pp. 179–204).

mama may be used in Indonesia for mother's brother by sibless peoples. I found this true myself for Mentawei. Again, while there is no question that mama is the general term for mother's brother in Indonesia, exceptions may occur. Dr Kennedy, for example, states that the Gayo of Sumatra use the term pon for this relationship.

In a similar manner the Dravidian terms (or similar terms) for older and younger siblings, akka and nangi, may be found both among Indonesian peoples with sibs and among those without sibs. The mere fact that the terms originated among Dravidians with sibs does not prevent the terms from being diffused to Indonesians who perhaps never had sibs. The general hypothesis still remains that the three terms mama, akka, and nangi first came to Indonesia with a sib system, and that the terms later were diffused to sibless peoples.

Dr. Kennedy does not refer in his review to Prof Lowie's article in the AMERICAN ANTHROPOLOGIST for 1934.[5] Here Prof Lowie deals in part with the question of kinship diffusion into Indonesia. Lowie grants, providing of course that philologists approve my linguistic tables, that there is a connection between the social traits of India, Indonesia, and even of Fiji and New Caledonia. But Prof Lowie does not admit that all social traits, such as avoidance rules, totemism, exogamy, and cross-cousin marriage, need have sprung up in a single spot and then have travelled together. Thus the presence of clans in both India and Indonesia may independently have given rise to totemism in the two regions.

In conclusion I might suggest that there remains a lot of work to be done in tracing the distribution of kinship terms and customs in India, Farther India, and Indonesia. This historical method, while less exciting than that of thinking up "origins" for social customs, in the end usually proves the more satisfactory.

EDWIN M. LOEB

BERKELEY, CALIFORNIA

REVIEW OF PEARCE AND JACKSON: A CORRECTION

To the Editor:

In the recent review of Pearce and Jackson's "A Prehistoric Rock Shelter in Val Verde County, Texas" (this journal, Vol. 37, pp. 676–78, 1935) the writer made certain statements which have been interpreted as insinuating that the senior author had exploited one of his students and had used, without credit, much of that student's work. Such an implication was not intended and the misunderstanding probably has arisen from the fact that it was necessary to reduce considerably the review as originally written and in the process an explanatory item was omitted. Reference is made to the mention of the use of Thomas' thesis. It was intended to include in the review this statement: "The method followed in preparing the report was: where Thomas' interpretations were accepted unmodified they were incorpo-

[5] R. H. Lowie, Some Moot Problems in Social Organization (American Anthropologist, Vol. 36, pp. 321–30), pp. 322, 323.

rated as quotations; where Pearce's and Jackson's views conflicted Pearce's were adopted, except in a few cases where Jackson's were retained with annotations indicating Pearce's views." Had this not been deleted in the final draft there would have been no cause for the thought that proper credit was not given in the report.

FRANK H. H. ROBERTS, JR.

BUREAU OF AMERICAN ETHNOLOGY
WASHINGTON, D. C.

NOTES AND NEWS

ANNUAL MEETING OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

At the December, 1934, meeting of the American Anthropological Association it was voted to meet with the American Association for the Advancement of Science in Washington, 1936. By letter of January 22, 1936, the latter association informed the American Anthropological Association that its December, 1936, meeting had been transferred from Washington to Atlantic City. An informal canvass of groups of American Anthropological Association members seemed to show that there is a very general feeling unfavorable to Atlantic City as the meeting place in 1936. After various alternative plans had been discussed, the matter was submitted to the Executive Committee which decided that the American Anthropological Association should meet in Washington separately and apart from the American Association for the Advancement of Science in December, 1936. The dates set for the meeting are December 27th–29th, with headquarters at the Carlton Hotel, 16th and K Sts., N. W., Washington, D. C.

The following committees have been appointed:

Program Committee: J. R. Swanton, *chairman*, F. H. H. Roberts, Jr., J. M. Cooper.

It was voted that the Program Committee be instructed to issue a call early in October for papers designed for the annual meeting, the titles and full papers to be in the Committee's hands by November 1st, and that the Committee be authorized to select a limited number of papers and addresses to be presented at the joint sessions of the annual meetings of the societies involved . . . [from the Minutes of the Andover meeting, December, 1935].

Nominating Committee: C. Wissler, *chairman*, C. E. Guthe, J. A. Mason.

Within three months of his election the President shall appoint a Nominating Committee . . . and transmit the names . . . to the Editor who shall publish the names . . . , with an invitation for suggestions; after considering such suggestions the Nominating Committee shall report its slate to the Council which shall pass on the recommendations, with such changes as are deemed advisable, to the annual meeting [from the Minutes of the Pittsburgh meeting, December, 1934].

JOHN M. COOPER, *Secretary*

ETHNOS

"Ethnos," a bimonthly journal of general ethnography and archaeology, has been issued by the Ethnographical Museum of Sweden, Stockholm (Statens Etnografiska Museum) in collaboration with Thule, Ltd., Publishers (Bokförlags Aktiebolaget Thule).

"Ethnos" will devote itself primarily to extra-European ethnology and archaeology. As regards subjects relating to Europe, as a rule the Editors will accept for publication only such as deal with Eurasian phenomena and problems. Attention will also be paid to general questions of principle within the sphere of ethnology.

The Journal is intended to be an organ of the Ethnological Museum of Sweden and to be published for those Swedish anthropologists (in the widest sense of the word) who are working in fields of research outside Europe. At the same time, however, the intention is . . . that it shall be international in scope, and the publishers will therefore gladly welcome as collaborators any foreign research students irrespective of the anthropological "school" to which they belong [from Ethnos, Vol. 1, No. 1].

The editors are Gerhard Lindblom and Sigvald Linné. Six 16 page numbers will be issued annually. Subscription: 6 Swedish Kr. *per annum*.

THE LIBRARY OF THE LATE DR WALTER HOUGH is offered for sale, as a whole or in part. Inquiries should be addressed to Mrs Myrtle Z. Hough, 1332 Farragut Street, N.W., Washington, D. C.

WE DEEPLY REGRET TO ANNOUNCE THE DEATH OF DR THOMAS T. WATERMAN, formerly of the University of California and at the time of his death Territorial Archivist of Hawaii, at Honolulu, January 6, 1936, aged 50.